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Observations ON THE TREATMENT OF CONGENITAL DISLOCATION OF THE HIP.*

BY

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A DISCUSSION of the treatment of congenital dislocation of the hip naturally resolves itself into a consideration and comparison of manipulative methods and open operations. It is barely thirty years since this disability was generally recognized as having been emancipated from the list of affections regarded as incurable. Prior to that time, once the diagnosis had been made, and the nature of the condition explained to the parents of the child, or to the patient himself, if old enough, the surgeon dismissed the case feeling that all that was possible had been done. Then came the quickening of interest and kindling of hope which resulted from the work of Lorenz, followed by the universal adoption of his manipulative method, the inevitable evolution of various modifications and improvements, and the development of open operations to be applied in cases which resisted manipulation, until to-day it may be said of this recently hopeless disability that, given an early diagnosis, anatomical and functional cure should be the rule and failure the exception, while even old and neglected cases are by no means quite beyond help.

Manipulative reduction is undoubtedly still the method adopted by the majority of surgeons in treating young patients, and sometimes those who are older. The original technique of Lorenz is still largely used, although many prefer one of the various modifications, the Denucé method being probably the most popular among those who have mastered it. Although statistics of the results of manipulative treatment present such extraordinary variation as to be largely valueless, there seems to be abundant evidence that in the hands of experienced operators a large proportion of the cases in young children can be permanently cured by manipulative methods.

When Lorenz first made his triumphal tour of American clinics I had the privilege of seeing him carry out his method on several patients, and the demonstration was striking and convincing. Full of enthusiasm I returned home, and immediately applied my newly acquired knowledge in the case of a girl, aged 3, with dislocation of both hips; a perfect anatomical and functional cure resulted. Unfortunately, however, this encouraging initial success was followed by a series of failures and incomplete cures, with only an occasional really satisfactory result; and I soon came to feel that a most uncomfortable uncertainty dogged my efforts to treat this disability. Diligent inquiry among some of my orthopaedic friends, and examination of cases treated by them, convinced me that their experience closely resembled my own.

My conversion to the open operation came in 1904, although for several years after that I employed it only occasionally and with misgiving born of inexperience. In June, 1904, the late Dr. Harry M. Sherman of San Francisco read a remarkable paper in which he advanced what seemed to me an unanswerable line of argument opposing manipulative reduction, and favouring arthrotomy as the routine treatment. I wish to quote at some length from Dr. Sherman's paper:

"As regards the manipulative method, I am sure that Lorenz told the whole truth when he stated that the obstacle to reduction was the narrowed part of the capsule at the posterior and superior or superior part of the acetabular rim. If the opening at this narrowed part is big enough to permit the head to pass, reduction can be accomplished by manipulation, and may be maintained, if the acetabulum is deep enough. I have in two instances done this I know, but in the twenty-eight hips in which I have done arthrotomy and in which I have explored the narrow part of the capsule by my finger, and so know its size and the strength of its walls, there has been but one case in which the passing of the head would have been possible. I am not too dogmatic when I say that no possible force could have put the femoral head through the narrow part of the capsule in any of the other cases. One possibility and twenty-seven impossibilities! Now what happens when attempts are made to accomplish this impossibility? Lorenz has reported plenty of fractures of the femur and one each of pubis and of the ilium, and other operators have done the same.[1] Lorenz reports seven cases of paralysis out of four hundred odd operations, but Taylor,[2] looking carefully for the condition, finds eleven cases in less than fifty operations by various operators including, I believe, Lorenz himself. My own contribution to the casualty list is the report of a case of Lorenz's own, of rupture of the capsule of the hip-joint distal to the constriction, and the thrusting of the femoral head out among the muscles of the thigh. While only one case was shown we have had this accident, still, from the similarity of the clinical conditions, I believe another had it, and it is not in the least impossible or improbable that it occurs in very many cases, especially in the class called 'anterior transposition.' Finally on all sides one finds the absurdity of the term 'bloodless' pointed out, and the reference to the lacerations of the muscles, the extravasations of blood and haematomas. And, last of all, Lorenz has reported one case of gangrene of the whole lower extremity. These accidents must make anyone, who is not an enthusiast or a special pleader, stop and think. One must say that to justify the exposure to such risks the percentage of successes, anatomic and functional, must be high, so that the benefit may, in the opinion of all, outrank the possible harm. What is the percentage of successes? From what we have seen of the Lorenz results scattered between Boston and San Francisco, we cannot believe that he ever really got good anatomic results in about half of all his cases."

Even if it be granted that Dr. Sherman presented an extreme view, and that his criticism of Lorenz's results was based in part upon the unwise application of the manipulative method to unsuitable cases, the essential fact brought out by him is that the entrance to the acetabulum is too constricted to permit the head to pass through it. I have personally verified this many times. But if Sherman's contention be true, how are we to account for the fact that so many undoubted cures are brought about by manipulative methods? In my opinion, in nearly all cases treated by manipulation the head does not at the time of apparent reduction fully enter the acetabulum, nothing intervening between the cartilage covering the head and the cartilaginous lining of the acetabulum. I believe that a wall of soft tissue is pushed before the head, and that this gradually disappears by pressure absorption during the prolonged retention in the abducted position, which forms such an essential part of the after-treatment of these cases.

I have long felt that the objections to the open operation do not rest upon a sound foundation. The word "bloodless" so frequently applied to manipulative methods is captivating, but to anyone who has seen the enormous haematomas which so frequently attend the Lorenz method this term makes no very convincing appeal. Then it must not be forgotten that almost overnight the Lorenz method of treatment was eagerly and universally adopted by the profession as the solution of the problem of treating these hitherto incurable cases, and treatment by manipulation soon became an established tradition, with the result that comparatively few surgeons have gained any extended experience with the open operation. Again, we must remember that thirty years ago orthopaedic surgery in general was much more the mechanical and manipulative department of surgery than it is to-day. Few indeed of the orthopaedic specialists of that time were trained operators, and as the great majority of congenital dislocations came into the orthopaedic department, manipulative reduction was practically the only method of treatment attempted. As I have said on other occasions, each worker in the field of the open operation for this condition has been more or less a pioneer, because the almost universal employment of manipulative methods has left the open operation largely without either teachers or students. Because manipulative methods produced results which were on the whole an enormous advance over the impotence of the era when these cases were classed as incurable, there developed too

* Made in opening a discussion in the Section of Orthopaedics at the Annual Meeting of the British Medical Association, Winnipeg, 1930.

general a feeling that both patient and surgeon should be congratulated even if results were often far from ideal. At the present time, given hospital facilities of the highest type, a surgeon to whom absolute asepsis has become a confirmed automatic habit, and who has acquired the necessary experience with this particular operation, it should be almost as safe as a tenotomy, and as likely to result successfully as an osteoclasis for bow-legs or an osteotomy for knock-knee, provided that one other factor is present. That factor is that the patient must be from 20 to 36 months old, and must never have been previously treated by manipulation. It is at this point that I come into conflict with many if not most of those who perform the open operation in certain cases. I believe the general teaching is that open operation should be held in reserve as a last resource where manipulative reduction has failed. I have always contended that such teaching is not merely wrong, but mischievous. The powerful grip with which traditional teaching holds the profession in regard to this particular surgical condition is well illustrated by a statement which occurred in a paper published in the *Lancet* about ten years ago by Mr. A. H. Tubby. He says:

> "No matter what the age of the patient may be, no resort is made to open operation until every effort has been made to reduce the dislocation by the manipulative method. In one instance, no fewer than eight such unsuccessful attempts were made. Portions of the adductors had been exsected, extension had been tried by heavy weights for several weeks, traction by pulleys up to the danger point had been used, and even when the trochanter major had been pulled down one inch below its normal position we found that flexion, hyperextension, abduction, circumduction inwards and outwards were all unsuccessful."

Such persistent unsuccessful efforts at manipulative reduction before resorting to open operation not only accomplish no good, but do great harm, and bring the open operation into undeserved disrepute. Tissues which have been bruised and scarred, and that have had their power to resist infection lowered by the traumatism inseparable from such unwise manipulative efforts, do not afford an inviting field for subsequent cutting operations, and cannot function as satisfactorily after the operation as tissues which have not been treated so unkindly.

In a young child the exposure of the hip by the Sprengel or Smith-Peterson approach is a simple procedure, and can be carried out rapidly and with little or no shock to the patient. Once the capsule has been opened and the constricted portion enlarged, reduction can be accomplished with almost no traumatism. Further, with the limb rotated inwards and maintained in moderate abduction of from 40 to 60 degrees, the head is so deeply buried in the acetabulum that with the most ordinary care there is no tendency to redislocation during the closure of the wound. When a plaster dressing has been properly put on, recurrence is practically impossible, no matter what position the patient is placed in. In my opinion, the actual traumatism is less, not more, in the average case, than when the manipulative method is employed.

Other things being equal, it must be granted that if a congenital dislocation can be reduced in a few minutes by an easy manipulative procedure which requires no elaborate surgical technique, it should be chosen in preference to an open operation which demands perfect asepsis, and which should never be attempted except by a highly trained surgeon. But are other things equal? Denucé teaches that his patients must not be allowed to begin walking until about one year has elapsed from the time reduction was effected, and he appears to regard as essential an elaborate course of after-treatment extending over many months, and even as long as two and a half years. Contrasted with this, after the open operation in children, walking in the plaster is encouraged within a month, and the plaster is abandoned and no treatment considered necessary after five or six months. Indeed, I believe the plaster could be removed with safety and all further treatment dispensed with much earlier in most cases; but I have not felt justified in taking chances in order to discover the minimum safe period of after-treatment. It is highly undesirable to keep the pelvis of a growing child enclosed in plaster for a year if half that period will suffice. The extended period of after-treatment insisted upon by Denucé and others is not only an objection in itself, but I think it lends support to my belief that cure by any manipulative method can be brought about only by pressure absorption of capsular tissue, which more or less completely blocks the entrance to the acetabulum. In other words, reduction by manipulation is usually at first incomplete, and it becomes stable only after the capsular tissue pushed before the head has disappeared. On one occasion I performed the following experiment: I reduced the hip by manipulation, and immediately took an *x*-ray picture. The head was opposite the acetabulum, but not deeply within it. I then performed an open operation and took another picture, which showed the head much more securely related to the socket.

It is granted that the open operation should never be attempted except by trained surgeons who can operate under conditions such that the failure of any link in the chain of asepsis is practically impossible; but if this be an objection, it applies equally to many other surgical procedures, and should not deter the surgeon who has learned to have confidence in himself and in the environment in which he operates.

The objection sometimes raised to undertaking early treatment, even by the manipulative method, is the difficulty of keeping the plaster from becoming soiled, but this is a less serious problem to ingenious and conscientious nurses than to those who study to escape any avoidable trouble or exertion. At any rate, in my experience, it does not offset the greater ease with which reduction can be effected in younger patients. While I operate on children as young as 19 or 20 months, it may be stated that from 2 to 2½ years is perhaps the ideal age. In a general way, the operation becomes more difficult and uncertain as age advances, but there are exceptions to this rule. It may be anything but easy in a child aged 4 or 5. On the other hand, in the exceptional cases where the hip is lax and the head can be moved up and down on the ilium to a considerable extent, reduction may be quite easy in a patient aged 10 or 12. In children aged 3 years or younger who have never been subjected to manipulation, the ligamentum teres is usually intact, and is an important guide in locating the acetabulum. In older children and in those who have been subjected to a previous manipulative effort the ligamentum teres may be absent, or, if found, detached from the head and curled up in the socket. Exceptionally I have found the ligament so voluminous as to occupy too much space in the acetabulum, interfering with the deep burying of the head which is so desirable, and, on this account, I have occasionally detached it and removed a large part of it. Sometimes even in the younger children the acetabulum is found so shallow, or its roof so sloping, as to jeopardize the result. When this condition is encountered, a wide chisel curved on the flat is driven almost horizontally into the ilium to the depth of about three-quarters of an inch, just above the upper rim of the acetabulum, and after prying down the roof of bone thus loosened, bone chips cut from the ilium are wedged into the gap created by the chisel. The same procedure has been adopted with complete success at a second operation in a few cases where the shallow condition of the acetabulum had permitted redislocation to occur.

Before dismissing the matter of treating congenital dislocation in young patients, reference should be made to a recent article by Dr. Charles H. Jaegar of New York. He pleads for earlier diagnosis, and describes a new and simple plan of treatment which he claims can be used successfully in infants as young as 3 or 4 months. His article, which appeared in *Surgery, Gynecology and Obstetrics*, April, 1930, is illustrated by some striking *x*-ray pictures of two cases, one set of pictures being those of a child of 7 months old when treatment was begun, while the other patient did not come under his care until the age of 2 years and 7 months. Jaegar argues that the shallow condition of the acetabulum is caused by pressure of the dislocated femoral head against its upper rim during the first months of life when growth and development are very active, and that this pressure prevents the normal development of the acetabulum. He states that removal of this pressure is promptly followed by development of the upper rim, and points to his *x*-ray pictures as proof. His

plan of treatment is as follows: The child is placed in a long hip splint of rustless steel. This splint consists of two circular bands to fix the pelvis and chest, and two lateral bars to support the legs. The lower ends of the bars are furnished with a foot plate and leather anklet, the function of which is to maintain a mid-position of the leg as regards inward and outward rotation. The long outer bar is bent to fit the patient with the lower extremity abducted to 45 degrees. Gradual reduction is accomplished by an adjustable pad pressing downward and inward on the trochanter, this pad being controlled by a wing screw about one and a half inches long. In his first case the splint was worn for eight months. In the second and older patient it was discarded in a little over four months. He considers three months sufficient. Weight bearing is not permitted during the treatment, and he challenges the theory that functional weight bearing is necessary for deepening the acetabulum. He claims that *x*-ray pictures taken at frequent intervals show unmistakably that the upper rim of the acetabulum begins to develop rapidly as soon as the pressure of the head against it has been removed; and he suggests that the damage to the head seen so regularly in later years in cases treated by other methods may be due to the fact that the soft cartilaginous head is supposed to pound out a hollow in the harder socket.

Treatment of Older Patients.

Granting that congenital dislocation of the hip is usually curable in young children, the problem of successful treatment in older patients remains a formidable one. Inasmuch as I never attempt manipulative reduction at any age, it is only natural that I should protest against attempts at manipulative reduction and plead for some form of open operation in all patients who have passed the early favourable period. To me it seems altogether unjustifiable to use the amount of force so often employed, and especially to subject the patient to repeated attempts at reduction after the first efforts have failed.

Starting from this point, my discussion of the subject narrows down to a consideration of the kind of open operation to be chosen after the favourable early period has passed. In my opinion, actual reduction of the head into the acetabulum may be attempted by much the same method as I employ in children, in any patient irrespective of age, provided the case be one of those exceptional ones where the hip is lax and where the femur moves up and down until its upper limit is within a short distance, say one inch or less, of the roof of the acetabulum.

Preliminary traction, advocated by some writers, is practically valueless in my opinion, unless it be applied directly to the skeleton, and even then its advantage is doubtful. There is, however, a little-known method of using traction which I employ regularly in fractures of the femur, which may reasonably be expected to yield some result, if continued for several weeks. This method was originated by Michael Hoke of Atlanta, Georgia, U.S.A. Into a short plaster spica, which surrounds the pelvis and upper part of the thigh on the injured side, are incorporated the side bars of what is practically a Thomas splint minus the ring. The thigh portion of the plaster is little more than a wide collar, and its upper edge must not come within a couple of inches of the perineum. The plaster is also carried down on the opposite extremity so as to include the foot, which is placed at right angles to the leg. In treating fractures of the femur in young children the usual adhesive strips may be used, but skeletal traction is preferable in older children and adults, and in applying this method to congenital dislocation, skeletal traction is indispensable. Callipers may be used, but my personal preference is for a pin passed through the femur just above the condyles. The degree of traction can be accurately controlled by a butterfly nut arranged on a screw, as shown in the illustration. The plaster is applied over very abundant padding, so that it fits the patient's body and limbs loosely. As soon as traction is applied, it tends to push the whole plaster dressing up on the patient's body, but the plaster cannot move upwards owing to the inclusion of the opposite limb. Thus perfect resistance is provided and all counter-pressure comes against the broad sole of the foot, a surface which is not only adapted to pressure but accustomed to it, instead of being secured by the ring of a Thomas splint pressing against surfaces not so well adapted to pressure. The pin through the bone, if aseptically introduced, causes neither trouble nor pain. Whether we use or discard preliminary traction, there are other aids to the descent of the femur; division of the ilio-psoas, and subcutaneous section of the adductors and of the ilio-tibial band, may also assist in getting the head near or opposite the acetabulum; it may then be "shoe-horned" into place.

In the cases where there is little movement of the head on the ilium, and the head is not within easy distance of the acetabulum, it will usually be better to abandon any attempt at actual reduction and adopt some method which will increase stability and improve function by giving support to the head when the patient places his weight on the dislocated limb. The effort actually to reduce the head into the deformed acetabulum in cases where it is riding high on the ilium requires so much force and is attended by so much traumatism—to say nothing of not being exempt from actual danger—and so often results in a hip which is largely or altogether stiff, sometimes with added flexion and adduction deformity, that functionally the patient may be little better or even worse off than before. The method of turning down a generous layer of bone from the ilium and wedging it in this position with bone chips cut from the crest of the ilium, so as to form a good roof over the head, is probably the simplest and safest compromise that can be devised.

A most ingenious operation has recently been proposed by Hey Groves. Briefly, this consists of reaming out a new acetabulum on the ilium, and then, after detaching the capsule from its pelvic attachment and sewing it over the head of the femur, implanting the head covered by the capsule into the newly formed socket. The outside of the capsule grows fast to the new socket, forming a most satisfactory lining; and as the interior of the capsule is furnished with synovial membrane this method creates a new articulation having all the elements of a stable and movable joint. This new operation has to stand the test of further experience, but it is one of those surgical procedures which appear to be sound and reasonable.

I have had no experience with the bifurcation operation described by Lorenz. It has always seemed to me wrong in principle; nevertheless, many surgeons have reported so favourably regarding the improved function brought about by this procedure that it must be accepted as one solution of the problem of dealing with this deformity in adults. In these old neglected cases, anatomical cure is rarely if ever obtained, and any method which promises improved function and lessens disability must be welcomed. The Lorenz operation has the merit of great simplicity and relative freedom from risk; and in view of the good results reported by many surgeons, and the ease and safety with which it can be performed, it may come more and more generally into use.

The most difficult problem of all is furnished by the bilateral adult cases. Hey Groves has made an arresting suggestion in this connexion: He says:

"The main reason which makes the bilateral case come for treatment is pain. This will be relieved, if one side can be reduced even though this side becomes almost ankylosed. But

if one side is reduced and the other left, the patient will have legs of such an unequal length that she becomes more lame than ever. This difficulty may be overcome and the operation of reduction made much easier by the following device: The femur is exposed through an anterior incision, and cut through transversely just below the small trochanter. The upper end of the femur can then easily be brought down, and turned with the head into the new socket. After this has been done, the two ends of the femur will be overlapping by two or three inches. This overlapping part is cut off from the distal portion, and the divided femur united over a bone peg. When the patient has recovered from this operation, she will have the two legs of the same length, and, whether another operation is done or not, she will be quite freed from pain, because on one side the body weight will be transmitted directly on to the femur. In actual practice, the only patient for whom I have done this is now at full work as a factory hand, and has not thought it worth while to have her second hip operated upon."

If it be true, as Hey Groves says, that once the femur has been divided transversely just below the small trochanter the upper end of the femur can easily be brought down and turned with the head into the socket, why not employ this method even in unilateral cases? It would seem to dispose at once of the problem of getting the head low enough to effect reduction, and thus other means of overcoming the obstinate resistance to the descent of the head, such as preliminary traction and division of resisting soft parts, could be dispensed with. The objection that in unilateral cases there would still be inequality in the length of the limbs could be overcome by performing a second operation to shorten the limb on the unaffected side. To me it seems that the suggestion made by Hey Groves possibly puts the whole subject of dealing with the older cases on an entirely new basis.

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BACILLUS COLI INFECTIONS.*

BY

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EVERY clinician who works with children must be well acquainted with *Bacillus coli* infections of the urinary tract because the condition is a common one, especially during the earlier years; but as pyelitis can only be diagnosed with certainty by an examination of the urine it is difficult to form any estimate of the exact frequency of such infections. The symptoms are often misleading, so that the urine is not examined, and in less severe cases the diagnosis must be missed many times for each occasion on which it is correctly made. The unwary and the inexperienced, who have not pyelitis in mind and who neglect to examine the urine of small children, must fail to identify the infection; even the watchful and experienced do not always find the diagnosis easy, for the collection of a satisfactory specimen of urine may take days even under the best conditions in hospital. In dealing with girls a catheter specimen is essential, since there is a great risk of contamination of the urine passed naturally; the difficulty of collecting a sample of the urine of male babies is less, but may require both skill and patience. What is difficult in hospital is but seldom attempted in general practice, and here it is quite exceptional to find that the urine of a small child has been examined.

The typical urine is pale and opalescent, the appearance being unaltered by the addition of acid or alkali; there is at least a trace of albumin present, and under the microscope pus and *B. coli* are seen. But there may be no such gross bacilluria as to produce opalescence, and the quantity of pus may not be great, so that to naked-eye examination the urine appears normal. In such cases a correct diagnosis can only be made by a careful microscopic examination. It is hardly necessary to add that a culture of a fresh specimen of urine is always advisable.

*Read in opening a discussion in the Section of Diseases of Children at the Annual Meeting of the British Medical Association, Winnipeg, 1930.

During recent years the whole subject of urinary infection has been invested with a new interest since Chown and others, working from the pathological aspect, raised important questions of the etiology and pathology of the condition. These questions are of more than academic interest, for, if the pathologists are correct, the clinician must revise his ideas of both etiology and pathology, and will probably have to modify his prognosis and treatment.

Clinical Aspect.

This infection may occur as early as the first week of life; indeed, some cases have recently been labelled congenital. It becomes more common at a later date, and only begins to diminish in frequency after about the eighth year. In the earliest cases boys and girls seem to be almost equally affected, but at the age of 1 year the girls already outnumber the boys, and as the years pass the preponderance of girls increases. These facts are pretty well established clinically, although the more recently published figures suggest that the incidence among boys is not so much less than among girls. Authors differ considerably in their estimates of sex incidence.

The figures from the Birmingham Children's Hospital show: under 2 years, 47 cases; boys 7 (17.5 per cent.), girls 40 (82.5 per cent.); deaths 7 (all girls). From 2 to 12 years, 70 cases; boys 18 (25.7 per cent.), girls 52 (74.3 per cent.); deaths 2. These figures deal with the diagnosed cases—probably the more severe cases which needed hospital treatment; even in these more severe cases the mortality is only 9 in 117, or 7.7 per cent.

Chown has made interesting suggestions to explain the disproportionate number of girls. He says that the diagnosis of pyelitis, and its inherent suggestion of an ascending infection, renders girls more often suspect, so that their urine is more often examined than that of boys in whom the condition is not expected. Further, since a girl's urine is liable to contamination from infections of the vulva, etc., a number of spurious cases of pyelitis are added to the real ones, and so the number of cases occurring among girls increases, while in boys whose urine is unexamined the condition is missed. It is hardly likely that such mistakes can have affected my figures much, because the staff of a children's hospital are alive to the fallacies as well as to the facts of urine examination in children, and the urines to be examined are almost invariably catheter specimens, at least in girls.

Symptoms.

Cases may be classified as acute, subacute, or chronic. The acute case often commences with a rigor or convulsions and high fever, and general disturbance which may be so severe as to suggest meningitis or pneumonia; the child is obviously ill. Sometimes vomiting or gastro-intestinal disturbance is a marked feature. In slightly less abrupt cases headache, backache, and general illness may suggest a typhoid or some similar infection. These acute symptoms are relatively common in the younger children and make the diagnosis particularly difficult and uncertain until the urine has been examined.

In older children the symptoms of pyelitis tend to be less puzzling, and constitutional disturbance is generally less severe. An abrupt onset is still common, but in the majority of these cases there is some local symptom, such as tenderness in the loin, frequency of micturition, or some discomfort in passing urine to point to the correct diagnosis. Still, many cases are obscure at the onset, and where vomiting is a feature the child may present the picture of a profound acidosis when first seen. At times an increased respiration rate may suggest pneumonia. Malnutrition and anaemia may set in rapidly, and occasionally jaundice complicates the diagnosis. Malaise, rather vague aches and pains, and moderate fever may suggest rheumatism, or abdominal discomfort and tenderness may lead to a mistaken diagnosis of appendicitis or abdominal tuberculosis. Indeed, there is scarcely any mistake which cannot be made in regard to these children.

Many of the chronic cases show surprisingly little constitutional disturbance. The patients are, perhaps, restless, imperfectly nourished children, who tend to be nervous;

but they are brought up for consultation on account of symptoms apparently wholly unconnected with the urinary tract, so that as a rule it is only during the search for the cause of their troubles that the infection is discovered. Fever may be absent or very slight in such children, and apart from the general lassitude and malaise with anorexia and some pallor there are no definite symptoms. The subacute cases generally occur among children who show periodic exacerbations of a latent infection, recurrent upsets which may appear with attacks of vomiting simulating cyclical vomiting, or periodic bouts of fever, the cause of which remains obscure until pus and *B. coli* are found in the urine.

Treatment.

The general rule is that patients having acute symptoms do well at all ages under strict treatment, but a certain number of those affected either fail to respond at all or only respond moderately well, and gradually fall into the subacute or chronic groups. In the less acute groups the cure is much more difficult, and treatment has to be more prolonged. In some instances the most painstaking treatment seems to be utterly unavailing, and nothing has the slightest effect upon the urine, for the bacilluria persists unchanged in spite of every form of therapy. Some cases show evidence of renal damage, such as the presence of casts in the urinary deposit, a raised blood urea, or a poor urea concentration test. In such cases the prognosis is not at all good, for sooner or later they develop signs of renal inadequacy or cardio-vascular damage.

There seem to be three important requisites in the successful treatment of all cases; needless to say the earlier the diagnosis is made and correct treatment commenced the better the outlook. The first requisite is rest in bed until the condition of the urine is normal. Children generally relapse if allowed to get up and run about before bacilli are completely abolished from the urine. They may relapse after the urine has become normal, but are certainly less likely to do so if kept at rest until it has become free from bacteria. The second requisite is alkali; this should be given in plentiful doses as sodium bicarbonate or potassium citrate. These drugs are not palatable, and should be made at least tolerable by the addition of syrup and some flavouring agent. The bicarbonate may also be added to drinks, and the citrate given in moderate quantity in home-made lemonade is not objectionable. No degree of alkalinization can completely inhibit the growth of *B. coli* in the urine, since the organism will grow in a more alkaline urine than the kidney can excrete. Wright states that *B. coli* grow in urine of *p*H 9.0, and the most alkaline urine the kidney can excrete has a *p*H of 8.6. For some years I have been in the habit of maintaining a constantly varying *p*H of the urine by alternating alkaline and acid medication. The alkalis are given in as large doses as the child will tolerate until the urine is definitely alkaline; then a mixture containing hexamine and acid sodium phosphate is used until the urine becomes acid, at which point alkalis are again exhibited. This treatment has the advantage not only of discouraging the colon bacillus, but also of diminishing other urinary organisms. I do not place any great faith in hexamine, but prolonged usage has given it some reputation and it seldom does harm. The third point in treatment is the flushing of the kidney by a large fluid intake. Fortunately most of the small patients are eager to drink; and this readiness should be used to give as large a quantity of fluid as possible; even a small child should take fifty to sixty ounces of fluid a day, and more can sometimes be given. Various urinary antiseptics are recommended; hexamine, salol, and hexyl-resorcinol are those most commonly taken by the mouth, while the usual lengthy list of antiseptics may be tried locally. Good results seldom follow such measures. Vaccines occasionally seem to be useful, but far more often prove disappointing.

The chronic case and the recurrent case present special difficulties in treatment; and it is still an open question how far one ought to go in attempting to eradicate the infection. McKann, writing in the *American Journal of Diseases of Children*, points out that 20 per cent. of children with chronic pyuria show some abnormality of the urinary tract. The most common deviations from the normal are dilatation of the ureters or kidney pelves, and kinking or doubling of the ureter on one or both sides. He suggests that these abnormalities have a special relationship to urinary infection, such that the abnormality either predisposes the tract to infection, or that a fortuitous infection persists because of the abnormality. Bigler, in 153 consecutive post-mortem examinations of children in which particular attention was paid to the urinary tract, found no less than 13 per cent. of abnormalities. Curiously enough the commonest abnormality was ureteral narrowing or obstruction, which occurred in 11 cases. In this series of 20 cases only four patients died as a result of urinary tract infection, and as the eldest of these was only 6 weeks old congenital abnormalities can hardly be said to have played a large part in predisposing to urinary infection in this series. On the other hand, there is no definite evidence here for or against the suggestion that abnormalities favour the persistence of acquired infections. In the present state of our knowledge, then, it is essential that every effort should be made to discover any abnormality of the urinary tract in any case of chronic or subacute pyelitis, in order that the abnormality may be corrected if possible or the prognosis modified accordingly.

A child with recurring attacks of pyuria who has a double dilated ureter and kidney pelvis can only be regarded as most seriously ill. On the other hand, a single hydronephrosis with a double ureter, provided that the sound kidney is functioning normally, can be treated surgically with a reasonably good hope of a definite cure. It is therefore advisable to have a cystogram taken in all chronic cases, and to make a cystoscopic examination in such as are unsatisfactory or doubtful as well as in the definitely abnormal. Pyuria is often associated with bowel infections and occasionally with a chronically inflamed appendix. These conditions should receive appropriate treatment.

Pathology of the Condition.

Interesting pathological studies have been published by Chown and by Wilson and Schloss, their papers being the result of post-mortem examination of children with urinary tract infections. Chown's paper was based on material collected at Johns Hopkins Hospital for the years 1911 to 1924, and deals with 29 cases. Wilson and Schloss took twelve years to collect the 49 cases on which they base their paper. These details are of some importance, since we are not told the number of clinical cases which produced the pathological material. The conclusions reached in both papers are similar—namely, that pyelitis is a misnomer; that pyuria is due to an interstitial suppurative nephritis, and that careful examination of the kidney pelvis generally fails to show any evidence of pyelitis.

The types of cases studied by these authors are identical, and are instances of severe septicaemic conditions. In Wilson and Schloss's paper there are no fewer than 7 cases of meningitis; 14 of pneumonia, 3 with empyema, 2 with otitis media; 11 of acute infective enteritis; and many of the cases combine one or more of the above conditions. These cases are obviously general blood infections of the most severe nature. It is doubtful if the *B. coli* which appeared in the urine was the original invading organism, and indeed it seems probable that this organism was a secondary invader if it ever reached the blood stream. The same may be said of those somewhat uncommon and most curious cases of pyelitis associated with jaundice reported by Gorter and Lignac.

Helmholz has done some extremely interesting experimental work with rabbits. He finds that spontaneous *B. coli* infection of the urinary tract occurs in these animals; that the bladder is primarily infected, and hence there may be an extension of the infection producing a pyelitis or pyelonephritis. On the other hand, if colon bacilli are injected into the blood an entirely different pathological picture appears, for under these conditions kidney abscesses may result, the bacilli being found equally distributed through both ureters and the bladder. He finds that the bladder is never infected unless the ureters

are infected; the ureters are never free from *B. coli* if the bladder is infected. In the spontaneous infections, by tying off the bladder and ureters separately, Helmholz has shown that the bladder is often infected, while one or both ureters are free from infection, and that although pyelitis and pyelonephritis may appear, kidney abscesses do not occur in the spontaneous infection.

It seems worth while to turn from the consideration of children to review briefly *B. coli* urinary infections in adults. After puberty such infections are far less common than in childhood, and a marked disproportion exists between the sexes. In men, apart from calculus, prostatic abnormalities, and urethral stricture, *B. coli* infections of the bladder or ureters are rare. In women, on the other hand, the *B. coli* infection is by no means uncommon. The associated conditions are pregnancy, gynaecological operations, the trauma of the honeymoon, and long periods of retention such as may occur on long car or railway journeys.

Further, such infections—provided that the infecting organism is the *B. coli* only—produce but little upset, and are probably frequently missed. The facts of this brief statement seem to point very definitely to an ascending rather than to a blood infection, and support the clinical finding of children's physicians that pyelitis is generally an ascending infection with a correspondingly greater incidence in girls. If these infections (*B. coli*) were blood-borne, then men would be not less susceptible than women, and evidence of disturbance in other organs of the body would be common and not infrequently severe.

Certain figures have been obtained from the Children's Hospital in Birmingham. Starting from the year 1925 117 consecutive and unselected cases of pyelitis were taken with the object of tracing the children, re-examining them, and determining as far as possible their present condition. In this way it is hoped to throw some light on the etiology of the condition.

Age.	No.	Male.	Female.	Average Age.	Acute Cases.	Died.
0 to 2 years	47	7	40	1½ years	33	7
2 to 12 years	70	18	52	6¼ years*	31	2

* The average age among boys was 7¼ years.

Of the seven deaths that occurred during the first two years all were in girls. Three were cases of pyelonephritis; one had kidney abscesses; one pneumococcal septicaemia; one infection of a congenital hydronephrosis; and one pyelonephritis and thrombosis of the left renal vein. This death rate (9 in 117 cases) is 7.7 per cent., or 3 per cent. in patients over 2 years of age. It must be remembered that these figures are taken from those ill enough to be admitted to a hospital, which suggests that many milder cases occur which do not need admission, and that therefore this is a higher death rate than the real mortality of all cases of pyelitis. On the other hand, several of the chronic cases showed evidence of nephritis while in hospital—the presence of tube casts in the urine, raised blood urea, or a poor urea concentration capacity. The cases in the above series are being followed up to determine the present condition of the children. It is proposed to examine the urine, the renal function, and the cardio-vascular systems.

Conclusions.

As a clinician I am familiar with a *B. coli* infection of the urine, a condition which is frequent in children, commoner in girls than in boys, appearing in acute, chronic, and recurrent forms, but which is relatively seldom fatal. This condition has been called pyelitis, and although I am not in a position to prove that it is always a pyelitis, I feel that I can prove that it is not always part of a septicaemia or evidence of a nephritis.

It seems that the pathologist has experience only of a selected group of patients out of the many who have *B. coli* infections of the urinary tract—the more severe cases which are septicaemias, and in which the colon bacillus is seldom if ever the primary infecting organism. It is hardly likely that a severe septicaemic condition in children, with renal infection and possibly abscess formation, could have a mortality as low as 3 per cent. after the age of 2, and it is significant that the collection of 78 post-mortem records took no less than twelve years at two large children's hospitals, whereas, clinically, *B. coli* infections are common.

I am deeply indebted to Dr. A. V. Neale for the work he has done in following up cases and in getting out the original figures for cases of pyelitis at the Children's Hospital, Birmingham.

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BACILLUS COLI INFECTIONS.*

BY

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It is a curious coincidence that just twenty years ago, at the seventy-eighth Annual Meeting of this Association, held in London in 1910, one of the subjects for discussion was "Infections of the urinary tract by *Bacillus coli* in infancy and childhood."[1] Whether it was by accident or by design that the subject of the present discussion, "*B. coli* infections in infancy and childhood," was chosen I do not know, but it will be of interest to compare the views prevalent in 1910 with those current to-day—twenty years after. It is perhaps significant that, whereas in 1910 the discussion was opened by a physician (Dr. Box) and a surgeon (Mr. Pardoe), this year the duty has been entrusted to a physician and a pathologist, which may be interpreted to mean that to-day the pathologist is called upon to take a larger share in the diagnosis than was formerly the case; but there is no doubt that the urological specialist can help very materially by cystoscopic examination and ureteric catheterization in clearing up these occasionally obscure cases.

One of the most commonly recognized diseases of infancy and childhood, which is generally held to be due to, or to be associated with, the *B. coli* in the majority of cases, is pyelitis, and it is a coincidence that Escherich, who discovered and named the *B. coli communis* in 1885, is generally credited with having introduced the concept "pyelitis" as a clinical entity into paediatrics in 1895. This statement is from Chown's paper—"Pyelitis in infancy"[2]—but, as Chown points out, Escherich's cases of pyuria occurred in older girls, from 7 to 9 years of age, and were not cases of the so-called pyelitis of infancy which are held to occur with greatest frequency in children of under 2 years of age. It was Finkelstein who in 1896 drew attention to the condition in infants, and who concluded from his observations that the lesion was a primary pyelitis. From that time onwards the existence of a primary pyelitis has been recognized by clinicians, and has gone unchallenged until recent years. There is no doubt about an infection of the urinary tract of which patho-

* Read in opening a discussion in the Section of Diseases of Children at the Annual Meeting of the British Medical Association, Winnipeg, 1930.

logical evidence can be obtained by examination of the urine; further, there is no doubt that the causal organism of the infection is the *B. coli* in the majority of the cases; but there is little direct evidence, apparently, that the lesion is primarily an inflammation of the renal pelvis, and probably it starts as an interstitial nephritis.

There are many interesting topics here for consideration and discussion, but I can only refer to some of them.

Pathogenicity of B. Coli.

How comes it that the *B. coli*, which is a normal and saprophytic inhabitant of the big bowel from the earliest days of extrauterine life, can become pathogenic?

One is reminded of the well-known definition of "dust" as "matter in the wrong place." When the *B. coli* gets into the wrong place (that is to say, when it leaves the colon) it may take on noxious or pathogenic properties. I need scarcely remind you that *B. coli* has active fermentative powers on sugars, alcohols, etc., and in particular that it ferments lactose with the production of acid and gas; the pathogenic intestinal organisms, such as the *B. typhosus*, *B. paratyphosus* A, B, and C, the Shiga-Flexner dysentery group of bacteria, on the other hand, do not ferment lactose, and are hence known as non-lactose fermenters. W. J. Wilson[3] has recently written as follows:

> "There is something more than chance behind the fact that the majority of the pathogenic races of the *coli*-typhoid group of bacteria are unable to ferment lactose. When a micro-organism becomes so definitely pathogenic as to be the causal micro-organism in a definite disease its cultural and, perhaps to a less degree, its serological characters become fixed. In the case of the *B. coli* group, the members of which are more saprophytic than parasitic, there is great variation in their action on sugars and also serologically."

I am personally not in agreement with this opinion; I hold the view that the cultural characters of an organism do not become fixed, but may undergo evolutionary changes, such as occur with all living things, and in the case of bacteria these changes may happen in a comparatively short space of time. To revert to the *B. coli* and its change from a non-pathogenic to a pathogenic condition. Normally in the bowel it is a harmless saprophyte, but in certain inflammations of the intestine the *B. coli* has been credited, rightly or wrongly, with a pathogenic role, as in cases of infective enteritis, and it may certainly give rise to cholangitis and cholecystitis, as well as to appendicitis, pelvic and abdominal abscesses, and to infections of the kidneys and urinary tract. In specific infections such as typhoid and dysentery the *B. coli* at times seems to acquire pathogenic properties, increasing the severity of the infection or giving rise to complications. Can it be that these various pathological conditions are due to different strains of the *coli* group of organisms? For example, the *B. coli communior* of Durham ferments saccharose, while the ordinary *B. coli* does not; the *B. lactis aerogenes* is non-motile and produces a mucoid growth on agar, and differs from *B. coli communis* in other respects. Then, again, it has been known for a considerable time that certain strains of *B. coli* are haemolytic, while others are not. Dudgeon, Wordley, and Bawtree[4] in 1921 and 1922 made an extensive study of *B. coli* infections of the urinary tract in relation to haemolytic organisms. Among their conclusions these observers state:

1. Two types of *B. coli* are met with in urinary infections—haemolytic and non-haemolytic. The haemolytic is much commoner in infections in the male (72 per cent.) and the non-haemolytic in the female (70 per cent.), but as very few children are included in the total of 160 cases studied it would be of interest to find out whether similar results would be obtained in *coli* infections in children.

2. It was unusual to obtain both these types of *B. coli* associated in any particular case, or for a haemolytic infection to be followed by a non-haemolytic, or vice versa.

3. Haemolytic *B. coli* occur in the normal stools of adults and children, but with increased frequency in cases of diarrhoea and colitis. No evidence was obtained, however, of direct relationship between the urinary and intestinal haemolytic *B. coli* in any particular case.

4. Few positive blood cultures were obtained, and in no case was a haemolytic *B. coli* obtained from the blood stream in a human subject.

5. Living colon bacilli, haemolytic and non-haemolytic, were inoculated into rabbits without serious ill-effect, and renal infections were not obtained, although various strains of urinary and faecal *B. coli* were used.

6. Some "normal" blood serums agglutinated *B. coli* antigens, but a much higher percentage of positive results was obtained with the serums of "*coli*" cases.

Infection of Urinary Passages.

Along which route or routes does *B. coli* travel from its normal habitat to the urinary passages? There are three possible routes: (1) directly via the urethra; (2) via the blood stream; (3) via the lymphatics. Let us examine briefly the evidence found for and against these.

The Urethral Route.

For many years it was held that the infection was an ascending one via the urethra, and the fact that girls suffer much more frequently than boys lends support to this thesis. Box, in 1910, adopted this view; of 107 cases to which he refers, 85 occurred in girls—a proportion of nearly 4 to 1. It is a prevalent belief that the so-called pyelitis of infants affects baby girls almost exclusively. Chown, Wilson and Schloss,[5] and others, maintain that the disease does not affect little girls so preponderatingly as is generally held, and among the possible sources of error which are doubtless sometimes overlooked are: a catarrhal vaginitis, itself secondary to some acute febrile condition; a specific vaginitis which is usually associated with a urethritis; contamination of the urine with faecal matter; and non-specific vulvo-vaginitis due to worms or some other cause. Chown mentions the first three of these possible sources of error, and I have myself seen all four operative in different cases.

Blood-borne Infections.

With regard to infection via the blood stream, several years ago I made blood cultures of a number of cases of pyuria and bacilluria in older children with negative results. Helmholz and his co-workers have made extended investigation on the filtering action of the kidneys after the intravenous injection of bacteria; in a recent paper[6] he has given a summary of these investigations, with various conclusions deducible from them. He was able to produce pyelitis in rabbits by both haematogenous and ascending infection, so that his experiments are not of much value in determining the probable mode of infection in infancy. He found that bacilluria induced by the intravenous injection of colon bacilli does not, as a rule, tend to become localized to the bladder once the infection has disappeared from the upper urinary passages. Many laboratory rabbits were found to have a spontaneous bacilluria, and his observations led him to conclude that in the rabbit the infection is of the ascending type. He is of the opinion that in children infections with the colon bacillus take place in the same way.

Bugbee,[7] on the other hand, does not agree that the infection in children is mainly of the ascending type, but that, as in adults, there are two types of infection—namely, those in which there is no urinary stasis, and others in which a lesion is present which interferes with complete drainage. In the type of case without urinary stasis the colon bacillus is the causal organism, which Bugbee thinks is produced in very large numbers owing to some intestinal disturbance, and then gets to the kidneys via the blood stream. The majority of these acute infections clear up rapidly, especially if the gastro-intestinal tract is treated at the same time as the renal condition; but if they do not, and especially if they tend to become chronic, cystoscopic investigations should be carried out. Wilson and Schloss, in their paper already referred to, state that the main argument in favour of an ascending infection is the greater frequency of pyelitis in females, but in their series of cases, as in Chown's, the difference in favour of females is not so great as it is usually stated to be. The anatomical lesions

they describe in the kidneys, which will be referred to later, rather favour a blood-borne infection. They also quote Brewer,[8] who, on clinical and experimental evidence, showed that ascending infections of the kidneys always arose from obstruction and stasis. In such cases the inflammation was not confined to the kidney tissue, but involved also the ureters and pelvis.

The Lymphatic Route.

The third possible mode of infection is via the lymphatics. In order to explain the more frequent occurrence of right-sided lesions, Franke suggested a direct lymphatic extension from the caecum. Chown questions the tenability of this hypothesis, and suggests the possibility of the weight of an enlarged liver pressing on the right kidney, which might lead to stasis and so to increased permeability of the kidney should a bacteriaemia be present. Whereas Chown's acute or subacute cases show the frequency of bilateral renal involvement with a tendency to more severe lesions on the right side, John Fraser of Edinburgh found a great frequency on the left side, which he explained by direct extension from the overlying colon. Another view is that the infection of the bladder may be direct (in girls), and that it reaches the kidney via the peri-ureteral lymphatics.

PATHOLOGY OF THE DISEASE.

With regard to the pathological anatomy of the malady, it was originally thought to be a cystitis (Escherich) or a primary pyelitis, with later on a possible involvement of the kidneys (Finkelstein and others). In 1910 Jeffreys,[9] Thiemich,[10] and Forbes[11] all reported cases in which suppurative lesions were present in the kidneys, with, in some cases, a normal pelvic mucous membrane. Forbes describes two post-mortem examinations on infants with pyelitis, aged 4 and 7 months respectively, who had suffered from diarrhoea and vomiting. He regards these as primarily gastro-intestinal infections, later giving rise to general systemic infection including the pelves of the kidneys and a descending infection of the urinary tract. In two other cases with enlarged kidney in which operations were performed, abscesses were found in the kidney substance.

More recently, Chown, Wilson and Schloss, Bugbee, Helmholz, and others have emphasized the fact that the commonest lesion in the type of case under consideration is a diffuse interstitial nephritis which may give rise to suppurative foci of varying size; pyelitis may at times be present in addition, and rarely a cystitis. This diffuse nephritis would explain the tenderness and pain which is sometimes present in these cases, and which is probably greater than a simple pyelitis could produce. It is therefore more correct to call the condition pyelonephritis than a simple pyelitis.

BACTERIOLOGY.

As regards the bacteriology of the condition, there is no doubt that the organism most frequently isolated from the urine in these cases is the *B. coli communis*, either alone or associated with *B. proteus* or streptococcus; these organisms may rarely be present alone. Other organisms I have encountered in the urine of these patients are *B. lactis aerogenes*, *B. pyocyaneus*, *B. coli anaerogenes* (this in the light of subsequent knowledge was probably a Sonne dysentery bacillus), a Shiga-like bacillus, *B. faecalis alkaligenes*, and staphylococci. The very fact that such a variety of organisms may be isolated from the urine raises a doubt whether these are the actual cause of the disease or merely secondary invaders. Certainly in a number of cases the disease appears to follow an intestinal upset and to present itself to the physician in the guise of an acute infection somewhat like a typhoid or paratyphoid fever. This may possibly be the stage of bacteriaemia, and it may be that during the process of eliminating the bacteria the kidneys develop the condition clinically known as "pyelitis." Perhaps some anatomical abnormality may be a contributing factor even in the patients who rapidly get well; it is certainly a cause of some of the cases of so-called chronic pyelitis or of a persistent or intermittent pyuria. Dr. Woolstein in 4,900 post-mortem examinations found congenital anomalies of the urinary tract in 117 (2.5 per cent.). Dr. Sheldon, registrar at the Great Ormond Street Hospital, has kindly analysed for me 400 recent consecutive post-mortem examinations, with the result that 10 showed similar congenital abnormalities—again a percentage of 2.5. My colleague Mr. Oswald Addison, who has for many years made a special study of genito-urinary disease in children, has kindly given me permission to quote some of his cases.

CASE I.

One of these was a girl, aged 11 years, who was admitted to the Children's Hospital on account of pain in the right loin of three days' duration. She had had nine similar attacks since she was 6 years old. The urine was acid, and contained many pus cells and *B. coli*. On cystoscopic examination there was a slight basal cystitis; the right ureter was red and oedematous, the left normal. Some weeks later pyelography showed the appearance of hydronephrosis on the right side, and at operation an aberrant artery was found running across the front of the renal pelvis. This was ligatured and divided, with the result that when seen three months later the child had had no recurrence of her symptoms, and a catheter specimen of the urine was sterile.

CASE II.

A similar case, that of a girl aged 8 years, was in Great Ormond Street Hospital under the care of Dr. Hutchison in 1923. She had attacks of renal colic complicating a hydronephrosis. At the first investigation the urine was sterile, but nine days later streptococci were present but no pus. At operation an aberrant vessel found running across the middle of the pelvis was ligatured and divided as in the previous case. Several years later a pyelogram revealed the hydronephrosis as large as it was at the operation, but the child had had no more attacks of colic, and the urine was sterile.

CASE III.

Another case of Mr. Addison's was that of a girl with three years' history of acute right-sided colic. A hydronephrosis was present, with pus cells and *B. coli* in the urine. At operation an aberrant artery was found running across the ureter about half an inch below its pelvic orifice to the lower pole of the kidney. This was divided, and eighteen months later there were no symptoms and the urine was sterile.

Another group of cases in which at different times a diagnosis of pyelitis, renal infantilism, or idiopathic dilatation of the ureters was made has been shown to be due to the presence of a valve-like fold of mucous membrane in the prostatic urethra, resulting in obstruction to the normal outflow of urine. Young, Frontz, and Baldwin[12] were the first to draw particular attention to the existence and the effects of this abnormality, and recently Drs. Poynton and Sheldon, in a paper entitled "Dilatation of the bladder and ureters in childhood,"[13] have reported a series of 24 cases, many of them with pyuria and infection, in which hypertrophy of the verumontanum, a urethral "valve," or some other congenital abnormality was at the root of the trouble. They point out that the true state of affairs may be easily overlooked if the whole genito-urinary tract is not removed *in toto* and subsequently carefully dissected out. Lastly, it should be remembered that an abnormality, such as a dilated ureter, may be unilateral.

TREATMENT.

Dr. Wilkinson has made adequate reference to the treatment of these cases, so there will be only a few points, mainly of a bacteriological nature, to which I need refer. As is well known, these cases do well if given plenty of fluid to drink and if the urine is made and kept alkaline. This treatment, however, does not always clear up the condition of bacilluria, which can then sometimes be made to respond to alternations of reaction in the urine. The sudden transition from a very alkaline to an acid urine will sometimes clear micro-organisms from a urine when the previous treatment with a urine alkalizer has failed. Urinary antiseptics are sometimes given; it must be remembered that hexamine will act only in an acid urine. It is possible that when this drug is being administered many organisms may still be present in the urine but fail to grow on culture; this may be because they are dead or perhaps only

inhibited by the antiseptic present. At a discussion on the treatment of pyuria in children, held at the Royal Society of Medicine in 1927, Drs. Hare, Lepper, and Martland[14] gave an account of work they had done on the reaction of the urine in relation to the treatment of *B. coli* infections with alkalis and with hexamine. These observers found that although the administration of alkalis relieves the symptoms, the patients are not cured thereby, for the alkalis have no lethal effect on the bacteria, nor do they act by neutralizing an acidosis. They alter the hydrogen-ion concentration of the urine, which may act beneficially in one of two ways: (1) the alkaline urine may be less irritating to inflamed surfaces than an acid one; (2) the hydrogen-ion concentration may be an important factor in determining the rate and force of the muscular contractions by which urine is propelled from the pelvis and the kidney to the bladder.

Hexamine, as is generally known, acts as a urinary antiseptic by breaking down into formaldehyde, which is lethal to coliform bacilli. Two factors are of importance in connexion with hexamine treatment—namely, the secretion of an acid urine, and the relative vulnerability of the invading bacillus to formaldehyde. Drs. Hare, Lepper, and Martland found that the greatest concentration of formaldehyde in the urine of their cases was 1 in 20,000, whereas anything less than 1 in 5,000 is said not to be bactericidal. On studying twelve strains of *B. coli*, however, they found considerable variation in the susceptibility of the action of formaldehyde on the bacilli, and, further, that it was only when the *p*H of the urine had fallen to 4 that effective doses of formaldehyde were liberated in the urine. It appeared that small doses of hexamine were preferable to large ones, as the former caused less alteration in the *p*H, and that considerably more formaldehyde was liberated at body heat than at the room temperature.

Drs. Hare, Lepper, and Martland also draw attention to the fact that the ordinary routine adopted in collecting and testing the reaction of the urine is misleading in this connexion. Litmus is not a good indicator because it turns blue at *p*H 6.6, at which acid reaction symptoms are not relieved. The urine should be collected in a stoppered bottle under toluene (to prevent decomposition and loss of CO_2), and should have the *p*H tested with phenol red in an ordinary comparator box. One should perhaps add that all these observations were made upon adult patients, but there is no apparent reason why the results should not be applicable to children.

The value of vaccine treatment in these cases seems to be subject to a good deal of difference of opinion. Twenty years ago Dr. Box said that it was of no value, yet at the same meeting Dr. Forbes said that three out of four of his cases were benefited by vaccine treatment. Many clinicians are inclined to agree with Box in thinking that vaccines are not of very much value. Personally I believe that cases of a true infection, in which there is a reaction and the consequent presence of pus in the urine, are often benefited by a vaccine, while simple cases of bacilluria do not appear to respond so well to this treatment. Perhaps I may be permitted to quote a few remarks I made at a discussion held in 1914 at the Royal Society of Medicine on vaccines from the standpoint of the physician.

I referred to a patient of Dr. Poynton and Mr. Fairbank, a baby girl about 1 year of age, who was profoundly ill from some urinary tract infection. The kidneys were considerably enlarged and the case was regarded as one of pyelonephritis. There were many pus cells and organisms in the urine, and on culture three different intestinal organisms were isolated. The child appeared to be dying, and permission was given to try a vaccine. This had already been prepared from all three organisms in case it might be called for, and four injections in all were given. Already after the first injection the child's condition began to improve, and she was shortly afterwards discharged from hospital looking the picture of health, but with still a few pus cells and organisms in the urine.

A point in connexion with vaccine treatment to which I referred in my paper of 1914 is that the urine should be culturally examined from time to time in order to ascertain if the same organism is present. I can recall a case in which four different organisms were isolated from the urine of a child at different times during the course of one year. These were a *B. coli anaerogenes*—probably this was what we now call the Sonne dysentery bacillus—streptococci, *B. proteus*, and *B. coli communis*; an autogenous vaccine appeared to clear the urine from the particular organism present at the time.

Another point to remember in treatment is that sometimes the infection will clear up either spontaneously or as the result of treatment, only to recur after a variable interval. In these chronic and recurrent cases some mechanical obstruction to the flow of urine or blood should be looked for, and will then probably be found. If the cause can be dealt with as in the cases to which I have referred the condition may be permanently remedied.

A line of treatment which holds out a certain amount of promise, but which so far as I know has not been given much of a trial by English-speaking physicians, is that by bacteriophage. Further, if it is a fact that a disordered condition of the bowel with the presence of an excessive number of *B. coli*, or of *B. coli* of an exalted virulence, is coincident with a pyelitis or a pyelonephritis, then attention should be directed to the bowels, which should be kept well oiled with liquid paraffin.

Conclusion.

Infections with *B. coli* in children are by no means rare; they often get well spontaneously; at other times they become chronic or tend to recur. Investigations should be made upon the properties of the organisms present as regards haemolytic power, serology, etc., to discover if these have any bearing on the clinical condition. In the chronic and recurring cases cystoscopy, pyelography, and if necessary catheterization of the ureters, should be carried out in order to ascertain if there is any abnormality present to account for the clinical condition.

These surgical procedures should not be so long delayed that the child's kidneys are found to be irreparably damaged when the biochemist makes an investigation of the blood urea and of the renal function. It will be deduced, therefore, from the foregoing observations that I am in agreement with Mr. George Waugh, a former colleague at the Great Ormond Street Hospital, who stated in 1927[15] that every case of urinary tract infection should be investigated by a team of four—a physician, a surgeon, a bacteriologist, and a biochemist—though personally I should include a radiologist, and if the patient should unfortunately die, then also a pathologist to hunt carefully for anatomical abnormalities. If this were always done these cases would be more thoroughly and systematically investigated than in the past, and the results would be better than have hitherto been obtained.

I should like to express my thanks to my colleagues at the Hospital for Sick Children for permission to refer to the notes of their cases; to Dr. W. P. Sheldon for examining the post-mortem records and obtaining the figures for the incidence of anatomical abnormalities; and to Mr. Deryck Martin for his assistance with specimens and for preparing the lantern slides.

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THE LABORATORY IN A SCHEME OF PREVENTIVE MEDICINE.*

BY

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THE use of the laboratory in the diagnosis, prognosis, and treatment of disease, and in investigations of circumstances, such as food and water supplies, involving the health and comfort of the individual and of the public, has steadily increased in recent years. Chemical and bacteriological work in connexion with examinations of milk and other foods, water, rivers, sewage effluents, etc., has become a regular part of the scheme of preventive medicine, and public analysts are among the regular officials of a Public Health Authority. The position with regard to human pathology is not so defined, and varies very much in different localities.

From its earliest days, and even then in its limited range, the Public Health Service has been particularly concerned with the prevention of infectious disease. It was natural, therefore, that with successive discoveries in the bacteriology and pathology of the infectious diseases, an increasing need for laboratory work in connexion with the Public Health Department should have been felt.

The Public Health Service has developed from being concerned mainly with the environment of the public into a more personal relationship with the individual in all forms of ill-health—not merely in a limited number of infectious illnesses. The need for the frequent and systematic aid supplied by the laboratory has grown correspondingly, and there are no Public Health Departments in this country without some arrangements more or less complete for this important purpose.

In the interest of individual and public health laboratory assistance should be systematized and made available for all persons for whom it may be required, not merely for those coming directly within the province of the Public Health Department in other ways. It is difficult to see how this could be arranged without the aid of the Public Health Department. This is shown by the frequent applications made to the department by medical practitioners for laboratory assistance, especially in the case of those patients unable to pay fees for the work done. While necessary in these cases, practitioners also find it convenient that in other cases the arrangements should be made by a central authority. This should not interfere with, but rather assist, the practice of specialists in pathology. The Public Health Authorities can avail themselves of practising pathologists; in the majority of cases this is the best and most convenient system, the function of the Public Health Authority being on the whole limited to seeing that such a service is available for everyone and that payment is made according to means.

It may be necessary occasionally that the Public Health Authority should itself supply pathological aid as well as provide for systematic assistance. Examinations for diphtheria and tubercle bacilli are often carried out with advantage directly by the officers of local authorities. The practitioners of a district find it very convenient to have these examinations performed locally, and to have arrangements made for receiving specimens at any time of the day or night.

In large cities the problem of systematizing laboratory aid is an easy one. Either a university, medical school, or laboratory attached to a large hospital, may be the centre at which the work is carried out, not only for the city itself, but for a large area around it. If there are specialists in the subject practising in the district, their services can be used. There are also excellent pathological institutes for carrying out the work. A systematic scale of fees can be arranged; outfits for taking the various specimens can be sent out; and the full time of the pathologist and his assistants can be occupied. Expert pathologists are always to be found in large centres of population.

In rural districts the problem is more difficult, although in countries so thickly populated as England and with such convenient means of transport, there is little extra practical difficulty in using the large centres for most of the work; this is usually done.

There are comparatively few instances where laboratory aid for diagnosis, prognosis, or treatment is so urgent that this convenient and economical method of using large centres would lead to serious difficulty. Unless time is very pressing, there are distinct advantages in using a large laboratory where not only the experience of experts can be drawn upon, but also where students can profit by laboratory work on problems which will arise later in private practice.

When the public service and public funds of a local authority are involved, it is advisable, I think, to limit the pathological and bacteriological aid to essential work necessary for public and personal health. Experimental research comes under a different category; and although it ought to be encouraged, it cannot as a rule be considered to be within the scope of the ordinary duties of local authorities.

Specimens forwarded for examination through a local authority should generally be sent for a definite object, not in a vague hope that the laboratory can take the place of a careful examination of the patient and in this way supply a clue. Without underrating the value of laboratory aids in diagnosis, prognosis, and treatment, I deprecate the tendency to rely on them to the exclusion of thorough personal examination and clinical methods. Too much dependence on laboratory aid leads to lack of care in other methods concerned with the personality of the patient and destroys that careful investigation which should be so useful in every form of illness. The laboratory should be relied on to assist or confirm diagnosis rather than to make it. In diphtheria, for instance, where immediate specific treatment by antitoxin is so valuable, I have come across cases in which the delay caused by waiting for a laboratory result of a throat swabbing has seriously prejudiced the chance of recovery. In most cases diphtheria can be diagnosed without laboratory aid, and early treatment is so important that in probable cases the antitoxin treatment should not be delayed for a bacteriological result.

Another important point is that a negative pathological finding may lead to omission of specific treatment, which would be against the public and personal interest. This is occasionally found in cases of diphtheria, in which for various reasons, such as the previous use of antiseptics, or omission to take rubbings of both nose and throat, a negative result may be obtained where definite infection exists.

During the war I had an interesting example of how bacteriological investigation may cause considerable unnecessary inconvenience. On one of the fronts, most of a unit was held up for what was described as an outbreak of diphtheria, there being many positive cases reported from the pathological laboratory. On examining the men concerned, I was very doubtful of the diagnoses, and visited the laboratory, where I found that none of the cases really showed true diphtheria bacilli, but only diphtheroids. In other diseases besides diphtheria I have known of incorrect laboratory reports causing considerable inconvenience.

In spite of these drawbacks, however, the enormous value of pathological investigation makes its systematization essential, and as the Public Health Departments are bound to be the starting points of this work for the poorer section of the community, it must apparently be systematized in the Department of the Public Health Service.

Quite as important as the pathological investigation itself is the ability of clinicians to interpret pathological findings. One of the important reasons for the employment of the best pathologists is that they can frequently assist the clinician in the interpretation of results.

From the public health point of view, the pathological laboratory will generally be most commonly used for diagnosis with a view to proper treatment; another branch of its work, however, is the preparation of autogenous vaccines. As far as my experience goes, the number of applications for autogenous vaccines made by medical practitioners for their patients has recently decreased.

The provision of laboratory assistance by Public Health Authorities, beyond chemical and bacteriological work by the public analyst, has so far been more or less limited to cases of infectious illnesses, including venereal diseases and

*Read in opening a discussion in the Section of Preventive Medicine at the Annual Meeting of the British Medical Association, Winnipeg, 1930.

tuberculosis, and to a slowly growing extent in other departments, such as maternity and child welfare. The rapid advance in pathological science in so many conditions not recognized in the past as coming within the direct purview of Public Health Authorities has clearly demonstrated that systematic centralized pathological aid should be within the reach of everyone, being essential to any complete scheme of preventive medicine.

THE MANAGEMENT AND TREATMENT OF INCIPIENT CATARACT.*

BY

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THE treatment of early cataract has always exercised the minds of ophthalmic surgeons; it is a matter of daily importance to us and our patients, and a very great deal has been written and said about it. This is an opportune occasion for a renewal and exchange of our opinions and a confirmation or otherwise of our beliefs.

Incipient cataract is a condition in which localized grey opacities have appeared in the lens during adult life, and for which there is no obvious constitutional or local cause, either injury or disease. Such cases, for want of more precise knowledge, are usually labelled "senile cataract."

We might also include in our discussion the prodromal state preceding the development of actual opacity. Here there is an appearance of varying spots and lines on mirror illumination at different angles; fundus details may appear distorted by irregular lental astigmatism; fundus illumination may be relatively poor; the pupil reflex greyish; and a central dark circular zone may show on transmitted light. These phenomena we know are due to the formation of fluid clefts between the cortical lens fibres and to nuclear sclerosis.

In examining the lens I always employ the direct ophthalmoscopic method with +16 sph. behind the aperture, and use the slit-lamp if necessary for further details. On the discovery of lens changes we look for other accompanying senile ocular conditions such as vitreous degeneration, colloid bodies in the lamina vitrea, and macular or circumpapillary atrophy. We eliminate such complicating eye diseases as uveitis, retinitis pigmentosa, and detached retina, in which the lens opacity is likely to take the form of a subcapsular rosette at the posterior pole. We also exclude such special cataracts as "ray" cataract and those associated with dystrophia myotonica and parathyroid tetany.

Some forty years ago it was the custom in cases of immature cataract for some ophthalmic surgeons to combine preliminary iridectomy with artificial maturation of the cataract according to Foerster's method. The anterior chamber being emptied, the lens was massaged by rubbing the front of the cornea with a cataract spoon. The object was to avoid extracting an unripe cataract. Among these so-called "immature cases" there were probably many with useful vision which we should now classify as "incipient." The method was uncertain in its results; it did not affect the posterior cortex; it was liable to cause iritis, rupture the anterior capsule, or subluxate the lens with resulting vitreous loss when extraction was performed. It it unnecessary because we can extract immature cataracts successfully, and it is wrong because we cannot tell how slowly opacity will develop. In a paper on "The prognosis of incipient cortical opacities of the lens," Jessop drew attention to cases of striated cataract in which progress was extremely slow, and which he thought might be described as "arcus senilis lentis." Speaking of the terror of progressive blindness which the word cataract implies in the minds of the laity he advanced the opinion that a surgeon would be perfectly justified in saying that these were not cases of cataract if the patient asked the question. The case was cited of a patient who had 6/12 thirty years after being first told of cataract.

*Read in opening a discussion in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Winnipeg, 1930.

In this connexion the most striking fact, I think, in going through old records is the considerable number of patients over 60 years of age affected with incipient cataract, and yet the very small number of cases which reach the operative stage. Many cases that I have been watching for from ten to twenty years, or longer, have still useful vision (6/12 or more), and many others that have died were still seeing well.

Lens opacities are physiological in old age, and may be compared to white hair, baldness, and wrinkled inelastic skin. Old age is a relative term; it may be very premature or much deferred, and so we may find lens opacities acquired in middle age or even earlier. This applies particularly to "coronary" cataract, which occurs frequently, and may be found so early as to merit the term "presenile"; its course may be so gradual as to seem almost stationary.

It is our duty, therefore, in cases of incipient cataract to avoid frightening our patients with the dreaded word "cataract" when progress may be so slow and useful vision last so long. Where there is no appreciable defect in vision, as in coronary, striated, or dotted cataract, nothing need be said, unless to a discreet relation or friend.

With defective vision, perhaps progressively diminishing, as in the cuneiform and radial-spoke forms of cataract, and in posterior saucer-shaped cataract, some explanation will be necessary, and then, as Story has remarked, it becomes a matter of "diagnosing and treating a patient, not a disease." With a sensible patient a true statement and clear explanation of the lens opacity, illustrated by a diagram or model, I have always found the best course. With a highly nervous individual we should speak guardedly; as, for instance, of "cracks" or "flaws" in the lens, "such as come to all with age." I know a patient who completely collapsed when told there was evidence of cataract in her eyes; and another, a nervous excitable woman, who perpetually vowed eternal vengeance against an oculist who bluntly told her she had cataract many years before an operation was needed. She suffered a life of apprehension from that day. We must on no account make our cataract patients hypochondriacs and take all the hope out of their lives. We should rather comfort them with a cheerful optimism. It is dangerous to predict when operation will be necessary. A patient who had been told by an eminent oculist that she would probably need an operation within five years was managing very well twenty years later with 6/9 and Jaeger 1 in one eye and 6/18 and Jaeger 8 in the other, and she was then 85 years old. I could give other instances.

As a matter of course we seek to obtain the best possible vision with optical corrections, and we may to some extent be retarding the disease by relieving accommodation strain. We also retest periodically and alter our corrections according to the demands of a changing lental refraction; hypermetropia may become less, myopia develop or increase, and astigmatism may alter. The use of Crookes's, fieuzal, or amber glasses in outdoor glare may help vision and protect the eyes from that radiant energy which is considered a fundamental predisposing factor in causing cataract. As lenticular opacity develops we instruct the patient how to get the best results from illumination, more intense for marginal and less intense for central opacities, and we determine if a weak mydriatic is any help. Incidentally, we watch tension, and should it rise from a swelling lens, iridectomy may need consideration. Reading vision may be improved with extra power in the presbyopic glasses, convergence for the nearer distance being relieved by prisms. The hand magnifier, or the "reading screen" made by Hawes, may be helpful, or both together; and I have known Galilean spectacles useful, but in such cases we are passing beyond the stage of incipient cataract.

What guidance in dealing with cataracts do we derive from pathological studies and researches into the constitution and properties of the lens? We know that the lens derives its nutrition entirely by endosmosis from the intraocular fluid. This fluid may be affected by any abnormal or toxic state of the capillary blood from which it is derived, and changes in the permeability of the capillary walls will also affect its character, while changes in the permeability of the lens capsule or in the epithelium lining

will affect the normal metabolic interchange between the fluid and the lens. Changes in the ciliary epithelium, if it has a selective function, would also have their influence; but according to the latest researches the intraocular fluid is a "dialysate" from capillary blood, and passes into the eye direct from the vessel walls without the intermediation of ciliary epithelium, or glands of the ciliary body.

According to Friedenwald's researches, the permeability of the lens capsule decreases with age, and metabolic processes may be thereby sufficiently obstructed to cause cortical cataract. Defective metabolism may damage the vital capsular epithelium, causing degeneration and vacuolation; and it disturbs the delicate autoxidation process of cell metabolism within the lens, so that in cataract "glutathione," which is specifically concerned in the chemical defence of the body, entirely disappears. According to Adams, in experimentally produced naphthalene cataract, which resembles senile subcapsular cataract, the cause appears to be a metabolic disturbance in the balance of the inorganic constituents of the body, and in these cases calcium oxalate crystals (like synchisis scintillans) were deposited in the posterior layers of the vitreous and on the surface of the retina. The potassium in cataractous lenses is a tenth of that in normal lenses (Burdon Cooper), and the calcium is increased (Adams), but some experiments have not given results sufficiently definite to associate parathyroid deficiency with ordinary senile cataract (Pellathy). With age there is a decrease in the soluble lens proteins (α and β crystalline) while the insoluble proteins (albumin and albumoid) increase, and nuclear sclerosis, comparable to cuticular keratinization, increases in extent and degree. When cataract develops there is hydrolysis and autolysis of lens fibres and coagulation of lens protein. The problem is very complicated, but we are hoping to learn some day from the biochemist the exact nature of the physico-chemical processes of normal lens metabolism and the derangements which mark the onset of cataract. But shall we ever be able to prevent cataract any more than senility and death?

It is evident that we have little to guide us in direct local medical treatment; and no treatment will remove actual opacity, for that represents the coagulation of lens protein and is "an irreversible chemical change" (Duke-Elder). I have no notes of any case in which definite lens opacities have disappeared. Improved visual acuity in the course of a case must be due to other factors, changes in hydrolysis or metabolism, and in the intimate relationship of vacuoles, clefts, and transparent fibres. It may in some cases be associated with better health, less near work, and a more restful life. Dor, with the idea of causing lens dehydration, tried eye baths of calcium iodide (made by a solution of 1 per cent. crystallized calcium chloride with 1 per cent. desiccated sodium iodide) and reported retarded evolution, often for a long time. But he also advised attention to stomach and teeth. His method has been continued and its adoption extended in the form of ointments. I have tried these methods, but never satisfied myself that they did much good. Dionine has been tried for its lymphagogue effect. Some use potassium iodide in drops or subconjunctivally, and this may be justified by the diminished potassium content of cataractous lenses. Some reinforce local treatment with potassium iodide or tiodine internally. Van der Hoeve is said to have found that potassium iodide counteracts the swelling of the lens vesicles. It is difficult to assess the value of such local treatment in a particular case, seeing that without it progress may be so slow and variable and that there may be periods of apparent improvement. Prescribed with proper qualification it is a useful placebo; it comforts and satisfies certain patients that something is being done and helps to save them from unscrupulous quacks. On the other hand there are others who are better without a daily reminder of their incipient cataracts.

Smith eulogizes subconjunctival injections of neutral mercury cyanide (1 in 2,000 to 1 in 5,000). He thinks that the resulting intense hyperaemia of the ciliary body re-establishes normal metabolism. He holds that it will cure 95 per cent. of early cases, but agrees that it does not remove lens opacities. It will be interesting to hear the experience of any who have tried this method. Ionization, radium, x rays, electricity, and local radiation have all been tried without success, and some are likely to do more harm than good. Lens antigen treatment has also proved useless. The existence of incipient cataract may lead us to the discovery of some complicating constitutional dyscrasia, hormonal defect, or focal condition which needs treatment, and the removal or treatment of which may stay or retard the lenticular changes. More good is likely to accrue in this indirect way than by any local medical treatment. There may be general debility or premature senility needing investigation, diet and hygiene may need attention, or there may have been some debilitating disease. Arterio-sclerosis may exist, and the condition of the blood vessels is of greater consequence than the pressure of the blood inside them. The urine should be examined as a general rule, and always in developing cases. Sugar may be discovered, and expert laboratory tests will then be required to determine if it is renal glycosuria and negligible, or whether there is mild or severe diabetes, the former requiring merely restriction of diet and the latter insulin.

Cases of senile cataract with diminished sugar tolerance are indistinguishable from ordinary senile cataract and differ in slit-lamp appearances from true diabetic cataract. In my experience, insulin treatment does not improve the lens condition appreciably, any more that it does the retinitis, although it may retard further changes, just as it prolongs life. Albuminuria also demands a medical examination, and in advancing cataract it is usually wise to have the patient generally overhauled.

We should not overlook evidences of endocrine deficiency and especially hypothyroidism. The thyroid is the great regulator of metabolism, and any obvious deficiency should be suitably supplemented. The function of the parathyroids is to destroy active waste products and regulate calcium appropriation, and by their power of stabilizing calcium in the blood they may check the tendency to the excessive lental calcium found in cataract. If there is insufficient parathyroid hormone the blood cannot hold so much calcium in solution, hence its deposition in the lens among other tissues; it has been thought that this may have some connexion with the development of cataract. Parathormone has, however, proved disappointing in arresting senile cataract, and observations have been made which seem to show that lens changes in chronic parathyroid deficiency may be primarily of another nature, and the deposition of calcium salts quite secondary. In parathyroid tetany the blood calcium falls to half the normal, whereas in ordinary cataract blood calcium is little affected. However, Siegrist recommends the trial of a preparation containing thyroid, parathyroid, and testis with calcium lactate.

As in some other eye affections it is, I think, of the greatest importance to eliminate chronic toxaemia and search for infective foci. The toxins of streptococci and coliform bacilli are commonly the infective agents. The teeth, tonsils, sinuses, gastro-intestinal and genito-urinary tracts, including the pelvic organs in women, should all be passed in review. In the mouth, crowned teeth, dead teeth, and stumps should be looked on with suspicion, and as apical abscesses are more potent for evil than pyorrhoea, radiograms are advisable when there is any doubt. I have seen cataract progress with unusual rapidity in the presence of dental sepsis. In the young, lamellar cataract has been caused by prolonged septic infection (mastoid and cerebral abscess), and such a toxic condition is likely to have a detrimental effect on the nutritional osmosis of an unstable adult or senile lens, especially where the sepsis is bottled up in the body. In elderly patients intestinal stasis, chronic constipation, and colitis are not uncommon, and should receive proper attention; and bacilluria should not be overlooked. It is not only our duty to have all these matters attended to in pursuing the treatment of incipient cataract, but we are thereby improving the general health and well-being of the patient, and ensuring a condition of vitality and resistance which will promote the success of a future extraction, should it be needed.

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THE DIAGNOSIS OF CANCER OF THE LARYNX.*

BY

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EXTRINSIC laryngeal cancer or cancer of the pharynx which has extended to the larynx usually comes under observation too late that the diagnosis is obvious. These cases are generally seen by the laryngologist much too late for successful treatment either by operation or by radium, and earlier diagnosis is urgently needed. The problem of early diagnosis is intensified by the fact that cancer in itself does not produce any specific signs or symptoms, and it is only when the cancer cells form a tumour or ulcer that a series of mechanical symptoms and signs appear. These symptoms also develop slowly and insidiously, and it is unusual for the patient to consult a doctor until such symptoms are well marked and until it is often too late for a successful removal of the growth. Moreover, in a hidden cavity like the pharynx where there is room for the growth to expand unseen, the first symptoms are trivial and may be neglected until secondary growths are manifest in the cervical glands.

The intrinsic cancers of the larynx are seen at an earlier stage, as the early symptom of hoarseness sends the patient to the doctor much sooner, but cancer seen in its earliest stage is more difficult to diagnose accurately. Hence cases of intrinsic laryngeal cancer present more frequent and more difficult problems in accurate diagnosis. I propose, therefore, to spend most of the time available in discussing the diagnosis of intrinsic cancer of the larynx. It is to be hoped that the more frequent use of the modern directoscope and direct laryngoscope, and suitable cancer propaganda, will produce the much needed earlier diagnosis of extrinsic cancer. The earlier stages of these cases may then present as many problems in diagnosis as the intrinsic cases.

Extrinsic Cancer.

The characteristic and offensive epitheliomatous ulcer commencing just below the aryteno-epiglottidean fold and rapidly involving that side of the larynx, produces fixation of the vocal cord with its consequent hoarseness. The first symptoms are sore throat and pain radiating to the ear, with a definitely tender spot near the greater cornu of the thyroid cartilage; then follows the characteristic hoarseness or roughness of the voice, with a copious frothy blood-stained expectoration. The top edge of the growth can be seen with the laryngoscope and palpation with the finger reveals the stony hard ulcer.

A post-cricoid carcinoma, which commences as a superficial growth on the posterior aspect of the cricoid cartilage in women, soon surrounds the lumen of the pharynx and spreads upwards to form the whitish warty upper edge seen in the later stages behind the oedematous arytenoids. These patients first complain of a soreness or pricking sensation with pain in the ears during swallowing. Pressure on the cricoid backwards against the spine or lateral movement of the larynx produces pain in practically all cases. Dysphagia occurs early and when these symptoms are present without a satisfactory explanation the patient should be examined with a directoscope or oesophagoscope. The laryngoscopic mirror will not show any signs in the early stage, and when the upper edge of the growth is visible the disease is advanced, and matters are still more hopeless when a vocal cord is paralysed. Neither is the growth within reach of the longest finger, and the passage of a bougie is valueless and even harmful. In the absence of physical signs, the dangerous diagnosis of neurasthenia is still made; but such a diagnosis should never be concluded until the presence of a growth has been eliminated by a direct examination.

Carcinoma in the vallecula, either on the base of the tongue or on the anterior surface of the epiglottis, excavates the base of the tongue and rapidly extends to the surrounding structures, and the submaxillary and deep cervical lymphatic glands of both sides are soon involved. The only symptoms are persistent severe pain and a catch on swallowing located by the patient to the base of the tongue, with blood-stained salivary expectoration. Occasionally a chronic paroxysmal cough is the first symptom. Later, the painful and limited protrusion of the tongue with the accompanying trismus impedes laryngoscopic examination, but the growth is within easy reach of the palpating finger and does not require a skilled laryngologist or endoscopist to detect and gauge the extent of the growth. The situation, the characteristic appearance, the odour, and the history of these growths make the diagnosis more or less obvious; but the differential diagnosis should always be considered, as I have seen two cases of syphilis in the post-cricoid region which have been mistaken for carcinoma.

Intrinsic Cancer.

A rapid and accurate diagnosis of a typical case of intrinsic cancer of the larynx is easily made. The characteristic miniature epitheliomatous wart or ulcer situated on the middle or anterior third of the vocal cord in a patient of cancer age, in which the differential diagnosis of chronic laryngitis with pachydermia, tuberculosis, syphilis, and a simple tumour can be undoubtedly excluded, presents no difficulty. Such a growth has been and is frequently removed by operation without a pre-operative diagnostic section. On the other hand, the atypical case or the hidden subglottic growth requires considerable ingenuity in diagnosis. The differential diagnosis may be obscure, and tuberculosis is more often mistaken for cancer than any other condition. A chronic tuberculous ulcer of the vocal cord in a man of cancer age, or a healed scarred tuberculous lesion which has broken down with a recrudescence of the disease, closely resembles cancer.

Lupus, owing to its distribution in the soft tissues, is more readily distinguished; but in both cases tubercle bacilli cannot always be found in the sputum. In a few cases of tuberculosis it is almost impossible to make an accurate diagnosis without microscopy. The guinea-pig test by inoculation from the piece removed unfortunately takes six weeks to mature, but it is so conclusive that it might be useful. Chronic laryngitis with localized pachydermia renders diagnosis difficult, but the long history, the type of patient, the slow progress with a tendency to a wide distribution, gives the clue.

Syphilis is readily differentiated from cancer. The presence of other syphilitic lesions, the history, and the Wassermann reaction indicate the correct diagnosis; but when cancer is grafted on an old syphilitic lesion, the diagnosis may be difficult and can only be settled by the aid of the microscope.

Benign or simple tumours are recognized by their appearance, their situation, and slow growth. These tumours are usually removed by intra-laryngeal methods, and if the section for microscopy in any way suggests malignancy a more extensive operation can be done. Occasionally a malignant tumour has been labelled by the section to be benign, or a papilloma has recurred and has become locally malignant.

Sarcoma of the larynx is fortunately very rare. I have only seen two cases, both in young adults. The tumours were smooth, sessile, globular, and vascular, and occupied

*Read in opening a discussion in the Section of Laryngology and Otology at the Annual Meeting of the British Medical Association, Winnipeg, 1930.

the inner surface of the aryteno-epiglottidean fold and ventricular band. The tumours bulged into the pyriform fossa of the pharynx and rapidly increased in size. Chevalier Jackson states that not one true sarcoma was found among 643 neoplasms of the larynx seen at his clinic, and there are only three specimens of sarcoma of the larynx to be found in all the museums of the London medical schools. The diagnosis of sarcoma is completed by exploration and a diagnostic section, and a survey of the literature of such cases shows the tumours to be either round-celled or spindle-celled sarcomata.

The subglottic growth, often found below the anterior third of the vocal cord, cannot be clearly seen by the direct or indirect method of examination. A heaviness in movement or fixation of the vocal cord occurs comparatively early in subglottic growths, but our President, Sir St. Clair Thomson, has shown that it is undoubtedly a late and unfavourable sign in the manifest cancer. The diagnosis of such cases of cancer should be made before fixation of a vocal cord is evident. The subglottic growth is more malignant and is quickly disseminated to the cervical lymphatic glands—therefore an early diagnosis is urgent and the "wait and see" policy cannot be adopted.

The directoscope and Jackson's anterior commissure laryngoscope with retraction of the vocal cord outwards now enable us to obtain a better view of the subglottic growth and the subglottic extension of a more manifest growth.

There is still some controversy as to the value of the removal of a portion of the growth for diagnostic purposes. Our President in July, 1922, recorded that in 37 out of 51 of his cases, the diagnosis was completed and proved to be accurate without the removal of a piece for diagnosis. In the remaining 14 cases the diagnosis obtained by a diagnostic section was misleading in two cases. A diagnostic section is a valuable but not an infallible aid to diagnosis, and it should be emphasized that a negative section should be ignored and considered to be useless. The value of a diagnostic section is increased if a sufficiently large and deep portion from the centre of the growth is removed. The whole portion should be carefully sectioned and searched from the surface to the depths and a number of sections made. For mechanical and other reasons, it is frequently difficult to obtain a satisfactory or sufficiently deep piece for section; but we are now better equipped with Jackson's tissue forceps and improved direct laryngoscope. There is an impression that the direct method of examination should be more frequently employed and every opportunity should be taken to make use of it. For example, when an anaesthetic is given for the extraction of teeth as a preparation for operation, information can be obtained by a direct examination.

If the diagnosis is in any way doubtful, a diagnostic section is imperative and hastens the diagnosis. If the wound produced by the removal of a portion does not heal, or if the tumour increases in size, it is strong evidence in favour of cancer. I have never seen any harm arise after the removal of a diagnostic piece, but the picture may be entirely altered and diagnosis made more uncertain in the case of a negative section. No doubt in suitable cases time will settle the diagnosis, and judicious waiting, with an examination once a week or at even longer intervals, will finally reveal the accurate diagnosis; but patients and their friends are apt to become restive and demand to know whether it is cancer or not. It is not always expedient to delay by waiting, but there are cases in which it is advantageous to wait and to be cautious. The delay, which should be as short as possible, gives an opportunity to have the teeth and mouth cleaned up. It serves to get the patient in training for an operation and a second opinion can be obtained if desired. It is often useful and expedient to have a second opinion; it increases the patient's confidence in his surgeon and may be helpful.

If these methods of diagnosis fail in a case of suspected cancer, it is justifiable to perform an exploratory laryngofissure with full permission to proceed to a radical operation. Where the growth is obscured by oedema of the mucosa or by inflammatory changes, such an exploratory operation is a necessity. It has been done, and no harm to the patient has accrued, particularly in those cases in which tuberculosis has been excluded. Exploratory laryngofissure has of course been frequently done to ascertain the extent of the growth and to decide whether a partial or complete laryngectomy is necessary.

Conclusions.

1. An earlier diagnosis of extrinsic cancer of the larynx is urgently needed.
2. Time will settle the diagnosis in some cases of intrinsic cancer, and it gives an opportunity to prepare the patient for operation, etc.
3. The direct method of examination is an aid to diagnosis and will ascertain the extent of the growth.
4. A diagnostic section of an intrinsic cancer is a valuable but not infallible aid to diagnosis. Such a section should be made in all doubtful cases.
5. An exploratory laryngofissure is justifiable when all other methods have failed.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

AN UNUSUAL CASE OF INTESTINAL OBSTRUCTION.

THE following case we believe to be unusual as we cannot find reference to similar cases in the literature at our disposal.

F. K., aged 27, a reservist ambulance orderly, was admitted to hospital at 10.30 a.m. on January 16th, 1930. He gave the history that the previous evening at about 7 p.m. he had partaken of a heavy meal, almost immediately afterwards being seized with acute abdominal pain. He vomited at the time and continued to do so throughout the night. The following morning he reported sick at his medical inspection room and was at once sent to hospital for admission.

On arrival the patient was markedly collapsed, with a pinched face and a pulse uncountable and imperceptible at the wrist. The respiration rate was 22 and the temperature 97.7° F. The abdomen was distended, rigid, and tender, especially in the epigastrium; movements were practically nil. The patient had not passed urine and the bowels had not been open since before the onset of the attack; a gentle enema gave no result. He was at once given brandy 1/2 oz. and pituitrin 1/2 c.cm., and prepared for operation.

The abdomen was opened by a mid-line subumbilical incision. Loops of slightly distended but much engorged small gut presented, and the abdominal cavity contained a considerable amount of blood-stained fluid. The trouble was eventually traced to the sigmoid loop, which was long and mobile, and which had swung across the abdomen to the right side, where it had herniated into a large retrocaecal fossa. It was tightly gripped in this position by a tense peritoneal band extending from the abdominal wall behind the caecum to the lower end of the attachment of the mesentery of the ileum. The sigmoid loop was tightly stretched but was not twisted. It was found that in taking up this position it had come to lie across the mesentery, obstructing the blood supply of the ileum for six or eight feet to within one foot of the ileo-caecal junction, where the structures, including the appendix, were quite normal.

The constricting band of mesentery was divided and nine inches of strangulated, distended, and engorged sigmoid colon withdrawn; this might have recovered, but the viability of the small gut was very doubtful. The ileum above the obstruction was turgid but not greatly distended; the portion involved was blown out, but the bowel from below the obstruction round to the sigmoid was nearly empty and normal in every way. Continuous intravenous saline was given throughout the operation, but at this stage life was almost extinct and it was considered advisable to close the abdomen. The patient died about one hour later.

The points of interest in this case seem to be the sudden onset, the absence of any marked distension, and the nature of the double obstruction. There were no adhesions to suggest a congenital malposition of the sigmoid. A possible explanation is that the small intestine was the first to suffer, allowing the contents of the large bowel to travel on till they reached the sigmoid loop, where they were held up, and so led to the second strangulation.

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British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

NORTH LANCASHIRE AND SOUTH WESTMORLAND BRANCH.

Puerperal Sepsis.

In a presidential address to the North Lancashire and South Westmorland Branch of the Association, Dr. COLIN M. CRAIG put forward some arguments against the exogenous theory of puerperal infection.

Dealing first with the introduction of sepsis, Dr. Craig said that until recently puerperal sepsis was ascribed to mismanagement of the case by the practitioner or nurse, and the theory of endogenous infection received scant credence. Mr. Victor Bonney had no support when he gave it as his opinion, some years ago, that many cases of sepsis had an endogenous origin. A statement which illustrated the orthodox view had been made by Dr. Robertson, medical officer of health for Edinburgh, who included sepsis, haemorrhage, and eclampsia as conditions which could justifiably be classed as preventable. Dr. Craig believed that more investigation would be necessary before it was possible to endorse such a statement. Sepsis might be introduced from without, or it might arise from a pre-existing focus in the body. During the past eleven years he had attended over 600 maternity cases, many of them abnormal. He had published in the *Journal* of June 8th, 1929, a series of cases of puerperal sepsis presenting features which called for explanation, but it would be of interest to quote their salient points again.

Case 1.—A healthy multipara, aged 36, was delivered spontaneously without a vaginal examination or other intervention. On the fourth day she developed a temperature of 104° F.; at operation on the fifteenth day pus was found in the left ovary and at the junction of both tubes with the uterus, with cellulitis of the left broad ligament. A subtotal hysterectomy with drainage was performed, and the patient made a good recovery. Examination of the pus showed the infecting organism to be a streptococcus, and subsequent cultures from the teeth gave a growth of three types of *Streptococcus longus*.

In considering this case, said Dr. Craig, a series of experiments on dental sepsis carried out by Dr. Rosenow at the Mayo Clinic was suggestive and relevant. Rosenow infected the pulp cavities of healthy dogs with streptococci obtained from cases of ulcerative colitis and renal lithiasis. A large percentage of the animals developed colitis and lithiasis, showing the possibility of systemic invasion from infected teeth. In a case of multiple cerebral abscesses recently examined after death by Dr. Craig the septic condition of the teeth constituted the obvious source of infection.

Case 2.—Repeated haemorrhage in a case of placenta praevia in an elderly primipara led to the performance of Caesarean section. The preceding vaginal examination was made at a nursing home under strict surgical precautions, but the patient ran a temperature for five weeks, and developed a pyaemic abscess in the thigh. This indicated that an infected clot had been disturbed in separating the placenta, and again the teeth were probably responsible.

Case 3.—A multipara, spontaneously delivered in a nursing home without any intervention, had had a cold on admission, and on the third day a rigor; she died after developing multiple pyaemic abscesses.

Case 4.—A multipara was spontaneously delivered before the arrival of the doctor or nurse; there were no lacerations. She recovered after a long period of pyrexia.

Case 5.—The child was born before the arrival of the doctor, who was met by an hysterical patient at the door, carrying the baby in her arms with the placenta attached. Subsequently she ran a high temperature, and examination revealed a mass of thrombosed veins in the base of the left broad ligament. There were no lacerations of the cervix and nothing abnormal in the uterus; septic teeth and tonsils were both present. The patient recovered after a prolonged period of pyrexia.

Case 6.—A forceps delivery in a farmhouse; there were no lacerations and nothing was retained. The patient developed a temperature on the third day, and her urine on culture showed a heavy infection with *B. coli*. She made a good recovery.

Case 7.—Another case in which the baby was born before the arrival of the doctor and no examination was made. On the third day she became pyrexial and the urine was found to be heavily loaded with *B. coli*.

Case 8.—A typical case of infection probably introduced per vaginam. An elderly primipara with a generally contracted pelvis was delivered, after much manual intervention, of a stillborn child which had presented by the breech. She had slight pyrexia for several weeks, and several small abscesses developed, but eventually she made a good recovery. This case illustrated the mild type of infection which more frequently seemed to result from vaginal interventions.

These cases of puerperal pyrexia, with the exception of the last, said Dr. Craig, indicated infection from within. Among 200 operations for appendicitis he had had three cases complicated by a virulent haematogenous infection of the kidney with *B. coli*. These were cases of blood infection arising from a form of local sepsis; the percentage agreed with the percentage incidence of his cases of puerperal sepsis, suggesting that these also had a haematogenous origin. The commonest organism in severe puerperal sepsis was *Streptococcus pyogenes*, but in the milder cases pure infections of *B. coli*, diphtheroid bacilli, non-haemolytic streptococci, and various Gram-negative organisms were found. Among 134 febrile cases investigated at Queen Charlotte's Hospital, not all those infected with *Streptococcus pyogenes* were severe in type; eight were mild. Dr. James Young of Edinburgh had recently stated that where hospital environment was kept free from puerperal infection by the elimination of emergency or mismanaged cases, such factors as throat infection were relatively insignificant, but this did not solve the problem of Dr. Craig's cases quoted above. In the investigations carried out by the Public Health Department of Aberdeen during the ten years from 1917 to 1927 the haemolytic streptococcus was established as the infecting organism in puerperal sepsis. The throat was the normal habitat of this organism, and the suggestion was put forward that hands and instruments were infected by droplets of saliva from the mouths of carriers. But though suggestive evidence was forthcoming, the theory, in Dr. Craig's view, was not yet proved.

A comparison of the cases attended by doctors and midwives showed a mortality rate of 6.9 per 1,000 for doctors, and only 2.8 per 1,000 for midwives. But there could be no comparison between the types of cases attended by doctors and midwives; and in point of fact the lowest mortality rate occurred among cases attended jointly by doctors and nurses. In the Aberdeen report the total death rate recorded over the ten years period was 6.6 per 1,000, while in institutions the figure reached 14.9 per 1,000. The general rate of sepsis was 1.5 per 1,000, but in institutions it rose to 4.5 per 1,000; the district rate was 0.7 per 1,000. Apparently the home was still the safest place for confinements. A certain proportion of cases of puerperal sepsis must result from mismanagement and the introduction of infection from without, but Dr. Craig's experience had been that many cases delivered under bad surgical conditions did not become septic. Moreover, though the medical man of to-day was more surgically clean in the conduct of his cases than his predecessor of forty years ago, no apparent reduction had taken place in the incidence of puerperal sepsis.

Dr. Craig concluded that the mild type of sepsis, due to *B. coli* and other organisms, was probably introduced per vaginam, but in some cases developed as a blood infection through neglected bowel conditions. The severe type due to *Streptococcus pyogenes* resulted from a blood infection arising from septic conditions of the mouth and throat more often than it did from exogenous infections. In institutions, when outbreaks took on an epidemic character, infection was probably conveyed from patient to patient by the hands of the attendants. The best chance of bringing about a reduction in the mortality rate lay, he believed, in adequate ante-natal care, the elimination of septic teeth, septic tonsils, and constipation; the provision of accommodation in hospital for difficult or abnormal cases; and the securing of a capable nurse and doctor for the normal cases, who would then take no harm even under bad home conditions.

Reviews.

AN INTRODUCTION TO TROPICAL MEDICINE.

IN their recent book[1] Sir LEONARD ROGERS and Major-General MEGAW, who have had long experience of tropical medicine, particularly in India, depart from the plan usually adopted by writers on this subject. Instead of devoting large sections of their book to medical zoology and parasitology, they deal with these in outline and mainly from the point of view of diagnosis and prevention. The result is that the accounts of the diseases themselves are not obscured by lengthy descriptions of the parasites or their vectors—matters which may be of interest to a minority of tropical practitioners, but which may appear redundant to others whose chief duty it is to diagnose disease and treat the sick. Nevertheless, enough is included to render the etiology of the diseases intelligible to every ordinary reader, who, if he wishes, may obtain more detailed information from the larger books on tropical medicine or on the various branches of medical zoology.

The book is divided into eleven sections. The first three deal with febrile diseases caused by protozoa, spirochaetes, and unknown viruses. Sections IV and V describe the typhus fever group and bacterial febrile diseases. There follow sections on bowel diseases with symptoms of dysentery and diarrhoea, diseases with the most prominent symptoms on the surface of the body, helminthic diseases, diseases caused by venomous animals, diseases associated with diet, and diseases caused by heat and light. The classification which this arrangement entails is in the main a purely clinical one, and leads to the separation of amoebic hepatitis from amoebic dysentery and oriental sore from kala-azar, though the parasites involved are either identical or very closely related. Each author has been responsible for about half of the book, the author's name appearing at the end of the part he has written. Thus the first author writes on kala-azar, plague, amoebic dysentery, leprosy, cholera, helminthic diseases; and the second on malaria, relapsing fever, yellow fever, typhus fever, diet, climate. The descriptions are clear and concise, and give all the essentials of clinical manifestations, diagnosis, and treatment. There are seventy-seven illustrations and two coloured plates. The illustrations consist of maps, temperature and other charts, photographs of cases, and a series of diagrams which show at a glance the etiology of those diseases in which intermediate or secondary hosts are concerned. The two coloured plates represent blood cells, blood parasites, bacteria, intestinal protozoa, and the eggs of helminths.

As the authors state in their preface, the book makes no pretence at being complete. Their object has been to produce a handy book which will give a broad survey of the field and serve as an introduction to the subject of tropical medicine. There is no doubt that they have accomplished what they set out to do, and students of tropical medicine will be grateful to the authors for having given them a simple straightforward account of tropical diseases, free from the encumbrance of a mass of detail which is clinically unnecessary. Moreover, compared with other textbooks the price is low, so that there is little doubt that it will be very widely read. The reputation of the authors is a sufficient guarantee of the quality of the book. They write almost entirely of what they have seen themselves, and when discussing treatment recommend what they themselves have found to be most beneficial. As an introduction to the subject of tropical medicine a student could do no better than to read this book carefully and make himself thoroughly familiar with its contents before seeking for more detailed information in a wider field.

[1] *Tropical Medicine.* By Sir Leonard Rogers, C.I.E., M.D., B.S.Lond., F.R.C.P., F.R.C.S., F.R.S., Major-General Indian Medical Service (ret.), and John W. D. Megaw, C.I.E., V.H.S., M.B., B.Ch., B.A.O., Major-General Indian Medical Service. Churchill's Empire Series. London: J. and A. Churchill. 1930. (Roy. 8vo, pp. x + 536; 77 figures, 2 plates. 14s.)

GYNAECOLOGY AND OBSTETRICS.

THE volume on *Diseases of Women by Ten Teachers*[2] has made such a definite place for itself in British gynaecological literature that it is no surprise to see it come out in a fourth edition. Mr. Comyns Berkeley has apparently been mainly responsible for the editorship of this edition, and two of the original ten authors have resigned their places to younger men. The anatomical and physiological sections have been largely rewritten, and in all other respects the book has been as far as possible kept up to date. Beyond this nothing need be said, because the book is already so well known, alike to teachers, students, and practitioners, that to praise it is superfluous.

Professor HENRY JELLETT'S *Short Practice of Midwifery*[3] has now reached its tenth edition (fortieth thousand), which is a record that may well gratify its author. The present edition has been carefully revised with the assistance of Drs. Pearson, Milligan, and Averill, of the Christchurch Hospital, and Dr. Lewis of the Hornby Mental Hospital, New Zealand. Several new illustrations have been added, and Dr. Hastings Tweedie and Professor Stroganoff have contributed accounts of the methods of treatment of eclampsia associated with the Dublin school and with Professor Stroganoff's name respectively. The author attributes much of the success of the book to the fact that in practical matters it has given the teaching of the Rotunda Hospital, and that this teaching has always been conservative. We believe, however, that in, for example, the treatment of accidental haemorrhage, the present practice of the Rotunda Hospital does not lay such stress, as this volume does, upon packing the vagina. It is also surprising to find six pages in this "short" textbook devoted to the practically extinct operation of pubiotomy, while only a page and a half is devoted to the lower segment Caesarean section. While wholly in accord with Professor Jellett's objection to the unnecessary resort to Caesarean section, and while recognizing that the brevity of his description may have propagandist significance, yet we seem to detect here a lack of proportion. The appendix, as in previous editions, contains an interesting table embodying statistics of the Rotunda Hospital up to the year 1927. We are confident that this is far from being the last edition of a most useful textbook.

Dr. J. S. FAIRBAIRN'S *Textbook for Midwives*[4] has reached its fifth edition, which is a satisfactory indication of its popularity among those for whom it is written. A general revision and some rearrangement of matter characterize this latest edition. The discussion of the physiology of reproduction has been improved by the introduction of some new figures, as well as by the addition of some further text. The requirements of midwife-teachers have been kept in mind, as well as those of the pupil midwives, and it is quite safe to prophesy that for both classes of readers this new edition will maintain the popularity and high reputation of Dr. Fairbairn's work.

PUBLIC HEALTH IN FRANCE.

M. A. LANDRY has written a very readable book on Public Health in France.[5] He is not a medical man, but holds a chair at the Sorbonne, and has written several works on political economy. At present a Député, he has reached ministerial rank in two Cabinets. M. Landry was called upon to write an introduction to the budget of the Ministry of Labour and Hygiene for 1930, and has taken

[2] *Diseases of Women by Ten Teachers.* Edited by Comyns Berkeley, H. Russell Andrews, and J. S. Fairbairn. Fourth edition. London: E. Arnold and Co. 1930. (Med. 8vo, pp. xi + 558; 186 figures, 8 plates. 18s. net.)

[3] *A Short Practice of Midwifery.* By Henry Jellett, M.D. Dublin University, F.R.C.P.I. Tenth edition. London: J. and A. Churchill. 1930. (5¼ × 8¼, pp. xv + 662; 282 figures, 4 plates. 18s.)

[4] *A Textbook for Midwives.* By John S. Fairbairn, B.M., B.Ch.Oxon., F.R.C.P.Lond., F.R.C.S.Eng., etc. Fifth edition. Oxford Medical Publications. London: Milford, Oxford University Press. 1930. (Roy. 8vo, pp. xiii + 369; 119 figures, 3 plates. 25s. net.)

[5] *L'Hygiène Publique en France.* Par A. Landry, Député, Ancien Ministre. Paris: F. Alcan. 1930. (4½ × 7½, pp. 173. 15 fr.)

the trouble to arrange that the general public in France shall have the benefit of it. The language is clear and the matter excellent. He writes as a politician, but so well informed a politician is he that the medical reader is always wondering how a politician can write so much like a public health worker. The clarity of his mind is such that after writing a page attempting to define the difference between public health and social hygiene he virtually gives up the attempt. Again, he cannot pass the word "preventorium," a term used in France for an institution where surgical tuberculosis is treated, without commenting on the inappropriateness of the word. He considers "pretuberculous" a senseless term, "in fact predisposition to tuberculosis is a myth; it is not a scientific reality." Broad views are put before the reader. Comparisons with foreign countries are made to point a moral; the French people are told that in 1927 in France there were 45 deaths from typhoid fever per million of the population, against 20 only in Switzerland and 9 in England. Home truths about venereal disease are conveyed in the polite form of figures: syphilis kills 80,000 French people every year, it causes every year 40,000 abortions and the death of 20,000 unborn children, and beyond that thousands of those born are degenerate, mentally afflicted, deaf mutes, or afflicted with diverse infirmities; gonorrhoea is the distant cause of the urinary disorders which carry off men between the ages of 50 and 60. Although some charlatans who pretend to treat venereal disease have been driven out of business, others manage to get a living. M. Landry shows us that the French nation are alive to the evil; railway companies even have their own venereal disease dispensaries, the foreign workmen brought in to do manual work attend special dispensaries, in some cases set aside entirely for their use. The work which remains to be done is set out in a long chapter. M. Landry's general conclusion is that the state of the public health in France cannot be described as anything but mediocre, and that the French people must be prepared to make sacrifices and spend more money on pulling it up. The author has proved himself a patriot: he has told his country important, if not pleasing, truths. Although perhaps we cannot learn from this work new sanitary measures which might usefully be imported into Britain, it provides an object lesson in how such books should be written.

KREHL'S PATHOLOGICAL PHYSIOLOGY.

PROFESSOR KREHL has just published the first volume of the thirteenth edition of what we are accustomed to speak of as his Pathological Physiology. His title for the whole work is "The Etiology, Diagnosis, and Treatment of Internal Diseases,"[6] the present volume being devoted to etiology, under which term are included pathogenesis and pathological physiology. He expresses the hope, in which the numerous admirers of his work will join, that his strength may hold out to complete the final volume on the fundamentals of diagnosis and treatment.

It might seem superfluous to do more than mention the fact that so well known a book had reached its thirteenth edition, retaining its original features, with the addition of discussions on the more recent developments of the science. To many English readers, however, the book is known through Dr. Hewlett's translation, which was made many years ago, and is to some extent an abridgement of the fourth edition; it is therefore necessary to refer to the present edition to obtain a correct idea of the aim of the author and the scope of the work. Professor Krehl appears to take his stand on two fundamental principles. In the first place, while recognizing the importance of empiricism, he writes from the standpoint of physiology, expounding pathological processes as far as possible in physiological terms. He has, of necessity, to indicate innumerable gaps which remain for science to fill in, but there can be but little doubt that this manner of viewing pathological processes is for the practitioner more useful in the long run than the common practice of seeking to give disease names to groups of clinical symptoms and signs. It keeps in view what is actually going on in the body. In the second place, Professor Krehl observes that a knowledge of the normal physiology of man does not at present exist. Isolated facts have been discovered from time to time from the study of man, but in reality human physiology is founded on observations made on animals. He bears witness to the extreme value of these observations; but to the extent that deductions from them have been applied to human physiology the latter remains a theoretical science. It was, he considers, a great advance in the development of pathological physiology when, largely under the influence of Naunyn's teaching, clinical observation took its place beside the old form of experimental physiology in the investigation of pathological processes. In adopting the principle of explaining the pathological through the physiological Professor Krehl therefore insists that these terms refer, not to animal, but to human pathology and physiology, and that these can be learnt only from patients themselves and in the clinical laboratory; and he restricts himself to the exposition of pathological processes as he conceives them to occur in the human subject and as deduced from clinical research.

On the masterly way in which the vast material is handled there is no need to comment; one feature of particular value to those who are precluded from making any extensive study of the literature may be mentioned. Professor Krehl brings his judgement and experience freely to bear on the numerous questions at issue in the problems engaging the attention of pathologists at the present time, and gives clear indication where caution and reserve are desirable in accepting deductions put forward.

[6] *Entstehung, Erkennung und Behandlung Innerer Krankheiten.* Von Dr. Ludolf Krehl. Erster Band, *Die Entstehung Innerer Krankheiten: Pathologische Physiologie.* 13 Auflage. Lieferung 1-7. **Leipzig**: F. C. W. Vogel. 1930. (Sup. roy. 8vo. Per part, M.6.)

EXERCISE IN CONVALESCENCE.

THERE can be no question as to the value of Lieut.-Colonel JAMES K. MCCONNEL's little book on *Shorter Convalescence*,[7] seeing that its merits are vouched for in a foreword by Sir ROBERT JONES, who says that it "deserves a wide circulation, and cannot fail to be useful to the student, the doctor, and the nurse." It remains for us, therefore, only to draw attention to the matter contained in the various sections of the work. There are eight of these and an appendix on convalescence after confinement. The titles of the sections are: "Introductory," "Developmental survey," "Physiological considerations," "Types of bed exercises," "The effect on the circulation," "Posture and respiration," "Unilateral action of the abdominal wall," and "The moral effect of minor exercises." There can, we think, be no doubt that convalescence after illness or operation may be much helped by gentle volitional exercises such as are here described, and that the gradual training, in the lying position, of weakened muscles may prevent their yielding to the unaccustomed strain which the first resumption of the erect position is bound to throw upon them. This is true of the muscles in general. In particular, as the author points out, the muscles of the lower extremities are apt to suffer from prolonged disuse, which may be remedied by gentle voluntary movements while the patient is still confined to bed.

NOTES ON BOOKS.

IT is only three years since the first edition of *Minor Surgery*,[8] by Dr. ARTHUR E. HERTLER and Dr. VICTOR E. CHESKY, was published, and already a second edition has been called for. A few alterations have been made in the text, and thirty-seven illustrations have been added. The authors confine themselves to describing the methods and the technique which they have found most useful in their own clinic. The pathology of disease has not been discussed, since the object of the book is wholly to aid the student to understand what he sees in his daily work and to enable him to give a general perspective of the subject which may be only partly illuminated by his clinical

[7] *Shorter Convalescence.* By Lieut.-Colonel James K. McConnel, D.S.O., *M.C.*, with a foreword by Sir Robert Jones, Bt., K.B.E., C.B., F.R.C.S. London: W. Heinemann (Medical Books), Ltd. 1930. (Cr. 8vo, pp. xi + 132; 10 figures. 5s. net.)

[8] *Minor Surgery.* By Arthur E. Hertzler, M.D., and Victor E. Chesky, M.D. Second edition. London: H. Kimpton. 1930. (6 × 10¼, pp. 602; 475 figures. 42s. net.)

observations. In spite of the otherwise very complete survey of the subject, no mention is made of even the simplest of fractures or dislocations. The book is freely illustrated with photographs and diagrams: the photographs are not uniformly successful, but the drawings are beautifully clear.

Professor HERMANN SCHLESINGER'S concise, practical, and readable little book on the clinical aspects and treatment of diseases in old age[9] is a reproduction, with considerable additions, of articles lately published in the *Deutsche medizinische Wochenschrift*. The diseases discussed include those which are more or less confined to old age, such as senile osteoporosis, prostatic hypertrophy, senile bronchial catarrh, and atheroma, and also affections met with at other stages of life, but presenting deviations from the ordinary clinical type when they occur in old age, such as tuberculosis, acute infectious diseases, and various systemic disorders. The concluding pages are devoted to the diet and hygiene of old age.

In a volume entitled *The Structure and Meaning of Psychoanalysis*[10] Drs. WILLIAM HEALY and AUGUSTA F. BRONNER, together with Miss ANNA MAE BOWERS, have aimed to give an organized statement of what has been contributed to date in psycho-analysis in the spheres of psychology and psychiatry. An original method of presentation has been adopted. On the left-hand pages are what may be called the orthodox theories and fact-findings of psycho-analysis. On the right-hand pages are introduced contributions of exegetical value; some notable accessions to the psycho-analytic structure by "Freudians"; and various ideas set forth by those who, still holding to the major concepts of Freud, offer divergencies of theory or practice.

The Effects of Moisture on Chemical and Physical Changes,[11] by J. W. SMITH, is an important contribution to the systematic study of the influence of water vapour on chemical and physical reactions classifying and correlating numerous references to the subject in scientific literature. Another compendious volume in the same series is Mr. AUDEN'S *Sulphuric Acid and its Manufacture*,[12] which expounds the fundamental problems associated with the manufacture of sulphuric acid and gives some account of methods of procedure and types of manufacturing plant. The text is accompanied by references to the original articles. A third textbook of physical chemistry, *Photo-Processes in Gaseous and Liquid Systems*,[13] by R. O. GRIFFITH and A. MCKEOWN, surveys the results of recent investigations chiefly in regard to the theoretical aspects of photo-chemistry.

A Medical Medley[14] is a collection of parodies, verses, and caricatures, such as form the brighter part of hospital magazines, written by the students of the University of Birmingham, and are therefore mainly of local interest. But the verses are clever, and some of the well-known teachers of the school are represented as they appear to their critical audiences; thus a surgeon is made to exclaim, after Gilbert's major-general in the *Pirates of Penzance*:

> "Why all the staff and nurses at the General think a lot o' me.
> My technique's irreproachable in doing a gastrotomy."

[9] *Klinik und Therapie der Alterskrankheiten*. Von Hofrat Professor Dr. Hermann Schlesinger. Leipzig: G. Thieme. 1930. (5¾ × 8½, pp. 132. M.6.)

[10] *The Structure and Meaning of Psychoanalysis*. By William Healy, M.D., Augusta F. Bronner, Ph.D., and Anna Mae Bowers, A.B. New York: A. Knopf. 1930. (6¼ × 9½, pp. xx + 481 + xxiv. 7s. 6d.)

[11] *The Effects of Moisture on Chemical and Physical Changes*. By J. W. Smith, B.Sc., Ph.D.Lond. Textbooks of Physical Chemistry. London and New York: Longmans, Green and Co. 1929. (Demy 8vo, pp. xii + 225; 44 figures. 15s. net.)

[12] *Sulphuric Acid and its Manufacture*. By H. A. Auden, M.Sc.Vict., D.Sc.Tübingen. London and New York: Longmans, Green and Co. 1930. (Demy 8vo, pp. vii + 231; 50 figures. 16s. net.)

[13] *Photo-Processes in Gaseous and Liquid Systems*. By R. O. Griffith, D.Sc., and A. McKeown, D.Sc. Textbooks of Physical Chemistry. London and New York: Longmans, Green and Co. 1929. (Demy 8vo, pp. viii + 191; 52 diagrams. 25s. net.)

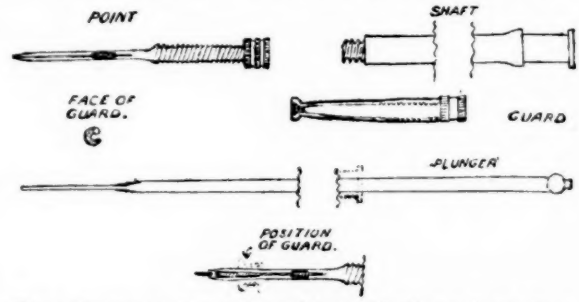
[14] *A Medical Medley: Student Verse, 1921–1930*. With an introduction by F. Brett Young. University of Birmingham Medical School. 1930. (Cr. 8vo, pp. x + 84; 11 illustrations. 2s. 6d. net.)

PREPARATIONS AND APPLIANCES.

THE IMPLANTATION OF RADON SEEDS.

Mr. E. WATSON-WILLIAMS, Ch.M., F.R.C.S. (Clifton), writes: The valuable article by Mr. Souttar in the *Journal* of August 23rd (p. 273) is of particular interest in that it draws attention to the utility and efficacy of radium treatment by means of radon seeds. In many regions the employment of radium needles has established itself as a therapeutic measure, but in others radium needles are difficult to insert and still more difficult to retain, while the threads which their use necessitates are a source of considerable inconvenience to the patient. Of no region is this more true than that of the pharynx and gullet, where radon seed treatment presents enormous advantages in technique, provided the results are comparable.

I have had an instrument made to facilitate the implantation of seeds by peroral endoscopy, and an account of it may be of interest in this connexion. It is modelled on the ovipositor of insects. The "business end" consists of a collar threaded internally to screw on to the shaft of an oesophageal forceps, such as are made with universal handles and interchangeable heads. Distal to the collar is a portion 2.5 cm. long, and threaded externally to take the guard; from the end of this portion the instrument is continued forward in the form of a fine hollow steel needle, coming to a sharp point. The needle is formed of two apposed springs; on one side near the base a window is cut to admit a radon seed. The seed is just "held" when pushed forward by the plunger, so that



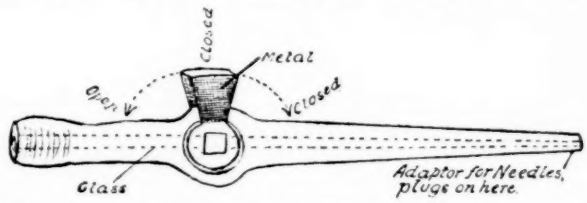
Shows plunger opening spring point and planting radon seed; seed half extruded. The vertical scale has been exaggerated for the sake of clearness.

it does not move during introduction. The plunger runs the whole length of the instrument, and is reduced to 1 mm. diameter for its distal 5 cm.—that is, to a small fraction less than the usual diameter of a seed; the length of the plunger is such that it projects 2 mm. beyond the point when pressed right home. The guard consists of a flat C-shaped piece, 6 mm. across, and attached by two legs to a collar which screws on to the external thread just described, the distance beyond the end that the point can project being regulated by screwing the guard up or down. The reason for the C shape, rather than a circle, is to enable the points to be kept in view when working down a long tube; for the same reason the milled collars are bevelled flat along their "upper" surfaces—that is, the ventral surface when working on a supine patient. The placing of seeds at any depth from the surface can be accurately and rapidly performed.

The instrument was made for me by Messrs. Allen and Hanburys, Ltd., and in my case to fit Mr. Crow's handle; but there is nothing to prevent the thread being made to fit any suitable pattern of oesophageal forceps.

GLASS INTRAVENOUS NOZZLE.

Dr. J. BYRNE (West African Medical Staff) writes: The nozzle illustrated in the diagram is specially useful in intravenous work—for example, administering salines. It is all glass except the metal lever for moving the stopcock. The latter can be opened or closed by the forefinger of the hand



holding the nozzle in position. The appliance is easy to use, the operator controlling the flow of solution at will and without delay. The advantage of glass as the material is that there is no difficulty in ascertaining whether the vein has been entered properly. The appliance has been made for me by Messrs. James L. Hatrick and Co., Ltd. (72, St. John Street, Clerkenwell Road, E.C.1).

BINOCULARS FOR VIEWING STEREOSCOPIC RADIOGRAPHS.

The application of the stereoscopic method to *x*-ray work is facilitated by the introduction by Philips Lamps Limited (145, Charing Cross Road, W.C.2) of stereo-binoculars for viewing stereoscopic radiographs in the lantern. In appearance this accessory resembles a pair of small opera-glasses, but by means of two built-in prisms the normal visual axis is so deflected that the two stereo-radiograms are at once seen as a three-dimensional image. Means of adjustment to secure perfect fusion and to meet individual requirements are provided. The device has the further advantage that distances can be immediately adjusted so as to make possible a general view of the whole field or the examination of details at close quarters. The instrument is handy and relatively inexpensive.

NINETY-EIGHTH ANNUAL MEETING
OF THE

British Medical Association.

Held at Winnipeg, August, 1930.

THE SECTIONS.

SUMMARY OF PROCEEDINGS.

DURING the next few months there will be published in the *British Medical Journal* the opening papers communicated to the Scientific Sections of the Annual Meeting at Winnipeg. The summaries of discussions in this and successive issues are intended to give members who were not present a general idea of the proceedings.

SECTION OF MEDICINE.

Wednesday, August 27th.

FILTERABLE VIRUSES AND PRACTICAL MEDICINE.

THE President, Lord DAWSON OF PENN, opened the proceedings by expressing his appreciation of the very warm welcome accorded by the medical profession and the citizens of Winnipeg. He then contributed a clinical introduction of the subject of filterable viruses, paying tribute to the past and present workers in this field, many of whom were martyrs to science. Lord Dawson was followed by Dr. S. P. BEDSON (London), who in an excellent paper stressed the necessity of there being close association between the clinical and laboratory aspects in approaching the solution of the vast problems still to be elucidated. The nature of the filterable viruses was first considered, and also the topics of active and passive immunization in virus disease with the various immunity reactions. Much of practical value to the clinician had already been discovered, and this was reviewed by Dr. Bedson, but he pointed out that an enormous amount remained to be done. With, however, the rapidly increasing number of workers in this field, a determined effort was being made to obtain a clearer understanding of the virus diseases. Dr. NEIL MCKINNON (Toronto) referred to the use of convalescent serum in Winnipeg in 1928 in poliomyelitis as an example of a successful fight against a virus infection. Similarly, the use of convalescent serum in measles would help to reduce the death rate in this disease. In Canada, from 1921 to 1929, there had been 5,000 deaths from this so-called harmless malady. He suggested that freedom from post-vaccinal encephalitis in Canada was due to the extremely careful and small scratch (1/16 inch) with the resultant light reaction. In a paper prepared by Professor NABARRO, read in his absence by Dr. John Parkinson, the use of convalescent serum in measles was described. The serum was obtained from adults, and remarkable results had been obtained in preventing the onset of this disease in contact cases. He was followed by Professor ARTHUR ELLIS (London), who stressed the various ways along which this subject could be approached. The conception of disease must, he said, be altered. There was evidence to show that there was a high percentage of virus carriers in whom disease occurred, not on account of infection from without, but owing to physical or physiological changes which took place in the organism, permitting the virus to multiply and overcome the lowered resistance of the individual. He gave examples from the plant and animal world, and explained the encephalomyelitis complicating vaccination on this basis. The PRESIDENT, following up Professor Ellis's theory, described in detail the history of an interesting case of herpes zoster which appeared to justify the assumption that the infection came from within. Dr. BEDSON then spoke briefly in reply.

THE TREATMENT OF HYPERTENSION.

Professor J. C. MEAKINS (Montreal), in a paper on hypertension, outlined the history of the treatment of this disease, and insisted on the necessity of control. This was achieved in his cases by allowing a period of three or four weeks' rest in bed before beginning the observations. Blood pressure readings were carefully taken four times daily, and the average for the day was used in his results. He described his results with ergotamine, which, when administered orally, had had little effect; when injected intramuscularly in 1 to 5 mg. doses, it produced a profound but temporary effect upon the blood pressure, and caused slowing of the pulse. The blood pressure was lowered thirty to sixty points (diastolic and systolic) for a period of one hour. A similar but much more prolonged result was obtained by using acetocholine in 0.1 to 0.2 mg. doses, freshly prepared in 10 per cent. glucose solution. Again, 72 per cent. of the cases of essential hypertension showed a profound drop in the blood pressure, and a slowing of the pulse. Professor Meakins had noticed no serious ill effects from the use of these substances, and recommended them for further serious trial by his colleagues.

SECTIONS OF SURGERY AND TUBERCULOSIS.

Wednesday, August 27th.

RECENT ADVANCES IN THORACIC SURGERY.

LORD MOYNIHAN (President of the Section of Surgery) took the chair at the joint meeting of the Section of Surgery with the Section of Tuberculosis. The proceedings were opened by Professor E. W. ARCHIBALD (Montreal), who read a paper on the scope of thoracic surgery. He pointed out that much advance had been made since the days of Simpson, and the assurance of safety through the work of Lord Lister, and that there had emerged two main points: (1) *specialization*, of which the youngest branch was thoracic surgery, which could now occupy the whole time of a specially qualified surgeon; and (2) *team work*—the association of surgeons, physicians, radiologists, and pathologists—the end-result being the emergence of a man who could devote himself to the surgery of the chest in empyema, bronchiectasis, pulmonary tuberculosis, and lung abscess. Professor Archibald discussed the advantages and disadvantages of closed drainage in empyema. In pulmonary tuberculosis he had seen gratifying results in thoracoplasty, phrenic evulsion, and in the combined operation, but he had less faith in the operation for dealing with adhesions and with apicolysis. As far as selection was concerned, he urged attention to the resistance of the patient in connexion with fibrosis and scarring, and considered that the best type was the good chronic case with contracted chest; whereas he had had a 66 per cent. incidence of arrest in favourable cases, he had had only 38 per cent. in conditionally favourable cases, and bad results in poor cases. His work showed that the main cause of death was pulmonary failure by spread of disease in the other lung. In lung abscess he had found that in certain cases too much had been attempted; for example, acute abscesses ought to be left alone. On the other hand, he had often found that too little was being done for the case of chronic abscess, and now, by newer methods, the mortality of 40 per cent., experienced before 1919, had been reduced to little more than 15 per cent. He considered that all cases of bronchiectasis ought to be diagnosed as "simple" or "complicated" before an operation was decided on; the congenital abscess with no lung complication was quite distinct from the complicated case with suppuration and lung involvement. He had been interested to see recently the good results that could be obtained by the operation of lobectomy, and believed that experience would show that a one-stage lobectomy would be an operation much more generally used in unilobar cases.

Dr. R. A. YOUNG (London), discussing the medical aspects of thoracic surgery, remarked that it was evident now that surgery of the chest could give results comparable with those of abdominal surgery. He considered that the medical aspects were wide, and that the duties of the physician could be classified under the headings of diagnosis, the suitability of the patient, the choice of the surgeon, the operative procedures, the preparation and after-care of the patient, and the decision on the time for the application of surgery. The diagnosis in basal and mediastinal cases was difficult, but nowadays *x* rays, lipiodol, and the investigations of bacteriologists and haematologists were of great assistance, as also was

exploratory puncture. He considered there was still scope for investigation in respiratory efficiency, but the greatest asset of the physician in many cases was clinical instinct. Where artificial pneumothorax was unsuccessful thoracoplasty ought to be considered; he had found it very useful, but he had less faith in the operation for cutting adhesions, and was very doubtful about the value of apicolysis. Phrenic evulsion he thought was very good. He considered that chronic abscess of the lung ought never to be left untreated, while bronchiectasis had proved so depressing in both medical and surgical practice that he welcomed any further help beyond pneumothorax and thoracoplasty, such as lobectomy, as giving a hope for the future. Some of his cases of malignant disease had done well in consequence of operation; he believed there was still further scope. The surgeon might be satisfied sometimes, the physician never was, but Dr. Young thought the future was very hopeful. Mr. A. TUDOR EDWARDS (London) doubted whether malignant diseases of the lungs had increased during the last ten or twelve years; his belief was that the incidence of cases diagnosed was much higher. Unfortunately most cases were very insidious in onset and beyond hope of success when they reached the surgeon. As far as type was concerned the order was carcinoma, sarcoma, and endothelioma. The carcinomatous type arose in either the bronchi or the parenchyma, and the diagnosis rested on the physical signs, *x* rays, and bronchoscopy. He had found the association of radioscopy with lipiodol very useful, as also had been pneumothorax. Thoracoscopy alone was of limited value, although it might help in the diagnosis of tumours of the pleura and sometimes in those of the lung. He thought exploration was now safe through intercostal incision. In treatment he had found six cases inoperable out of nine where the growth was central, and in these he had applied radium. While the method of bomb radium at a distance was of no use in his experience, and the external plaque procedure only helped in relieving pain when the chest wall was involved, his best results to date had followed the insertion of radium seeds by the bronchoscope and open operation. Deep *x*-ray therapy had been very disappointing, but he was satisfied that some effort was being made towards efficiently dealing with the condition.

Dr. W. L. MANN (Winnipeg) discussed phrenicotomy, and stated that much advance had been made since paralysis of the diaphragm had been suggested in 1911. It had been found that cutting of the nerve did not produce the desired results, and that even resection had not been sufficient, owing to the many accessory branches of the nerve. Avulsion by slow twisting was now the operation of choice, although its application to a smaller length than four inches still gave disappointing results in about 25 per cent. of cases. The lung volume was lessened by from one-sixth to one-third. While the best results were seen in cases of lower lobe disease, good results could be obtained even in apical cavitation. The dangers of the operation were not great. The main indications were in pulmonary excavation, where thoracoplasty was not possible. The operation was of much assistance in residual abscess, and in bronchiectasis with or without pneumothorax, but the best results were achieved in cases of pulmonary tuberculosis where the pneumothorax was incomplete, the case chronic with no pneumothorax possible, and thoracoplasty too serious an operation to face. Phrenicotomy had proved valuable in pulmonary haemorrhage, and he believed it should always be performed as a preliminary to thoracoplasty. Dr. J. D. MCEACHERN (Winnipeg), who dealt with closed drainage of the chest, described with the aid of a cinema the complete operation. Washing out the cavity by Dakin's solution could be performed every two hours without discomfort to the patient, and the continuous negative pressure could be maintained in the meantime. In 50 per cent. of these cases the patients had been children under the age of 4, and he had had only one death. He believed that the operation produced lowered mortality, especially in infants, since no general anaesthetic was necessary; there was less danger of secondary infection, while morbidity was lessened. The average duration of treatment was six weeks; this he attributed to the softening influence of the Dakin's solution, to the continued negative pressure, and to the absence of painful dressings.

Dr. N. S. SHENSTONE (Toronto) read a paper on pulmonary lobectomy in bronchiectasis, remarking that, while lipiodol had helped in the diagnosis of obscure cases, the etiology and extent of the disease could never be determined until all methods of investigation had been tried. He had had seven cases in which one or more lobes had been removed, and had decided on operation in cases where other methods had promised less chance of recovery. He had begun by performing a two-stage operation, but had given it up because he believed that the first stage—a wide lower thoracoplasty—gave rise to septic pleurisy and pneumonia. He now used a one-stage lobectomy, preceding it by paralysis of the diaphragm, and had had only one death in six cases. He had found that a local anaesthetic alone was generally sufficient. He described the method of operation fully, through the opening of the intercostal pleura. The separation of adhesions was generally without difficulty. He left the smallest possible pedicle, applied two snares to control the bleeding and give support, and usually incised within three-quarters of an inch of the proximal snare. Mr. DICKSON WRIGHT (London) showed his instrument for implanting radium seeds. Sir STCLAIR THOMSON (London) said he was very interested, as an onlooker, to see the further applications of the initial principle of rest. Dr. L. S. T. BURRELL (London) expressed his belief that phrenic evulsion was indicated for movable mediastinum and for cases terminating in pneumothorax after three years. Dr. PARSONS (Toronto) described his method of forced drainage of bronchiectasis in children. Lord MOYNIHAN (Leeds) said he had much enjoyed the discussion, and congratulated both the surgeons and the physicians. Specialization must come as a growth of competent medicine and surgery, but he believed that the hope of the future lay in team work; the craft of surgery was complete, but the bounds had not been reached. The opening speakers then replied, and Professor ARCHIBALD summed up the discussion.

SECTION OF OBSTETRICS AND GYNAECOLOGY.

Wednesday, August 27th.

USES OF RADIUM IN GYNAECOLOGY.

THE President, Mr. COMYNS BERKELEY, opened the proceedings with an acknowledgement of the warm reception he had received in Winnipeg, and welcomed the visitors from the United States and other countries. On behalf of oversea members he thanked the Canadian Medical Association for its hospitality. Mr. SIDNEY FORSDIKE (London) reviewed the present-day knowledge of the clinical properties of radium. He described the various phases of enthusiasm through which gynaecologists had passed in the last thirty years, and stressed the fact that the standard of "cure" was so elastic that it was very difficult to compare the results of treatment in one centre with those in another. Among the urgent problems of research at present none was more necessary for elucidation than the way in which radium acted, whether on the cell or stoma. He strongly recommended that some of the radium provided for clinical research should be diverted to the equally important field of biological investigation. In his opinion the primary action was on the stoma, the cell changes being only secondary; but further investigation was needed, since it was only by a full understanding of this problem that the dosage and method of application could be placed on a scientific basis. Mr. Forsdike briefly discussed the marked divergence of views on the question of split dosages and treatment of the glands, to show the chaotic position at present. Reviewing the more clinical aspect of the uses of radium in gynaecology, he stated that no matter what might be the view regarding its effect in cancer, there was no denying its value in producing an artificial menopause, though differences of opinion existed as to dosage, and whether it was the endometrium or the ovaries which were affected. He had recently been using a dosage of 53 mg. of radium element, screened by 1 mm. platinum, for twenty-two hours, and had obtained satisfactory results. In his opinion there was no doubt that the ovaries were unaffected, and that the entire results arose from the action of radium on the endometrium. He advocated very rarely the use of radium in the treatment of fibroids. Mr. Forsdike then discussed radium as a therapeutic agent in the treatment of carcinoma of the cervix uteri, as opposed

to operation in operable cases, and from the point of view of its value as a palliative agent. He stressed the widely divergent methods of application, dosage, and standards of nomenclature used in determining "cures." He recorded his results in treating 181 cases from 1921 to 1925; in 134 inoperable cases there had been palliation and prolongation of life, but no cure; in 33 borderline cases 4 had been cured; of 14 operable cases 4 had been cured. The rate of cure in all cases treated by radium was 4.5 per cent., and even in operable cases only 28 per cent. Though he was a believer in the future of radium, he considered that operative treatment gave the best results in malignant cases, and he foresaw a general resumption of treatment by operative surgery. Professor W. W. CHIPMAN (Montreal) said that greater knowledge was required before realizing the value of radium, and greater care in its use was essential for success. He discussed its application in combating cancer and in controlling uterine haemorrhage. In the latter condition the value was greatest when the bleeding was intrinsic uterine haemorrhage from such conditions as subinvolution due to sepsis; it had lesser value in fibroids and the bleeding of adolescence. Radium acted by its effect, not only on the endometrium, but also on the ovaries, altering the hormonic output controlling menstruation. It should not be used indiscriminately in cancer, but only by those specially trained in its properties and application. In his own clinic in Montreal, between 1919 and 1929 only 289 cases had been treated, but the actual results were not known, since his follow-up of the cases was not yet complete; moreover, a long enough interval had not yet elapsed in many of the later cases to be of value in estimating its efficiency as a curative agent. His opinion of the position, however, was that all patients with carcinoma of the cervix should receive radium treatment if the condition was inoperable, and that at the present time radical operation seemed to offer more hope in the early and selective conditions. He suggested that the effect of radium on cancer depended to a large extent on the actual resistance of the patient.

TREATMENT OF THE LYMPHATIC GLANDS IN CARCINOMA OF THE CERVIX.

Mr. MALCOLM DONALDSON (London) discussed the treatment of lymphatic glands in carcinoma of the cervix, emphasizing the point that while the original growth responded as a rule to radium treatment, there had not been the same degree of satisfaction with the treatment of the gland metastases. This might be due to insufficient irradiation of these areas, and he had devised a method of direct application of radium to the pelvic glands in cases of carcinoma of the cervix. He stressed, however, the fact that the glands themselves would appear to be actually more radio-resistant than the original growth, and he suggested that the glands did not act as areas of resistance in spreading the growth to generalized metastatic areas, but actually as centres in which the malignant cells could grow more rapidly. This view was supported by the fact that while cancer cells were found in the lymphatics it was not until the glands were reached that any large deposits of cancer appeared; moreover, it had been shown that tonsillar extract contained a definite growth-producing substance for tissue culture. He discussed the questions whether radium acted by direct effect on the cells, and whether its action was due to the effect on surrounding cells. If the action was indirect it might well be that the effect of radium on glandular tissue was far less than on other cells of the body. After this review of the biological problems of radio-sensitivity Mr. Donaldson outlined the various ways in which glandular metastases in malignant disease of the cervix uteri had been attacked—namely, by operation, *x* rays, and the direct application of radium by the external and internal peritoneal routes. He described his modification of the Brussels methods of introduction, as used in thirteen cases in 1923-24, and detailed the procedure he had adopted subsequently. He showed a chart of the results obtained in thirty-eight cases, but explained that sufficient time had not yet elapsed for definite conclusions to be drawn as to the remote results of this method of treatment. He disagreed with Mr. Forsdike's view that radium did not affect the ovaries, but considered that this was an important factor; further laboratory research was necessary before drawing any final conclusions as to its place in medicine. Sir EWEN MACLEAN (Cardiff) mentioned the perils attending the indiscriminate use of radium by those not specially skilled and trained in its application. Mr. GORDON LUKER (London) stated that after an extensive use of radium he felt that the best results in carcinoma of the cervix followed radical surgery. Dame LOUISE MCILROY (London) thought that by treating patients with radium in cancer cases many would be encouraged to apply early, undeterred by the fear that hysterectomy would be performed for symptoms suggesting cancer. More knowledge was required about the individual case before applying radium therapeutically, in order to prevent some of the immediate serious consequences. Mr. T. G. STEVENS (London) remarked that the discussion so far had been mainly theoretical; a few practical hints would be of value to many present. He thought that radium should be distributed at the introducing end of the applicating needle rather than in the middle. He deprecated the use of emanation tubes, which he considered valueless; the services of a physicist were essential to control the actual dosage. As regards the area of activity he was sure that the ovaries were the main organs affected in cases of menopausal bleeding, and not only the endometrium, which suffered partial and not complete destruction.

The President, Mr. COMYNS BERKELEY, continuing the discussion, said the position of radium with respect to other methods of treating cancer of the uterus was not yet fully clear; its determination necessitated the analysis of a large series of cases extending over many years, possibly as many as ten. Such an analysis could be of value only if when dealing with various cases of the disease in a particular organ very careful reports were made by all the medical men concerned on the same lines and on similar case-sheets, including, whenever possible, a note of the after-history up to ten years or death, if such should occur during this time. According to the published results of certain Continental clinics, the treatment by radium of cancer of the cervix had been more successful than in any other part of the body. The results, however, from these various clinics, and especially from those in England, were very unequal. For some years now there had been two schools of practice dealing with cancer of the cervix—that of surgery and that of radiotherapy. An examination of the published results of authorities in each method of treatment disclosed the fact that the percentage of cures (freedom from recurrence after five years) was somewhat larger after the radical operation, but that the primary mortality was much higher. In fact, the primary mortality with radiotherapy compared with that following the radical operation might for statistical purposes be regarded as negligible. To arrive at a definite decision as to the best method of treatment from a comparison of the two methods was not, however, a simple matter. Just as the results of any particular surgeon should be based on the knowledge of his operability rate only—that was, the number of completed radical operations he performed out of the total number of cases on which his advice was sought—so the value of the results of the radium therapist should be based on the knowledge of his radium rate only—namely, to how many cases did he give the full treatment, out of every case on which his advice was sought, even if any of the patients were *in extremis*. Many surgeons, whose statistics were sufficiently exhaustive to be relied upon, maintained that the published results of radium treatment could not, in all cases at any rate, be fairly compared with those of the radical operation, since such strict records were not obtainable, and that, therefore, the sample of radiotherapeutic cases might very well have been one of a less advanced nature. In other words, the surgeon gave more patients a chance of cure, which might account in a great measure for the higher primary mortality. The argument that the operability rate was a personal factor, depending on the judgement and skill of the operator, and that it therefore did not assume the importance which had been claimed for it when a comparison was being made of the two methods, was fallacious, since any authority on the treatment of cancer of the

cervix knew that if a surgeon completed the radical operation on 65 out of every 100 women he saw, he must be operating on very advanced cases as well as on others.

It seemed almost impossible to reach a classification of the extent of the disease which would enable a comparison to be made between the various methods and the various clinicians. Although not by any means perfect, the classification of the League of Nations into four stages appeared to be the best available at present; it had been adopted by all Continental nations and by all the centres of the National Radium Commission. It might appear easy to divide cases into operable and non-operable, but to assess the value of such a division one must know the operability rate of the surgeon reporting his results. The majority of surgeons had not given their operability rate when publishing their figures. The division of cures by the pure radiologist into operable and non-operable was futile, since he had no means of knowing from personal experience which cases were operable and which were not. Although, therefore, the classification into four stages was undoubtedly the best at present, the diagnosis of the exact stage of the disease in any particular patient must always remain a personal factor of the medical practitioner treating the patient, the most difficult stages to separate being the second and third in certain cases. A final judgement as to the value of treatment by radium could be given only when it was specifically stated, in the reports from each clinic, (1) how many patients were seen by the medical officer as out-patients, in-patients, or in consultation; (2) how many of them received the full treatment; (3) how many were incompletely treated; (4) how many were refused treatment; (5) the reason for the incomplete treatments; (6) the reason for refusing any treatment. With respect to the best treatment of the glands the President added that he had an open mind, more especially as regards the early cases, since it was known that cancer of the cervix differed somewhat remarkably from cancer in other situations, in that glandular infection was comparatively late. In all his radical operations he had had the glands examined, and many times he had been struck with the fact that in what was an apparently somewhat advanced case the glands were free from involvement. Enlarged glands were not rarely inflammatory in nature. He kept his mind open because at the two greatest centres for radium treatment—namely, at Stockholm and Paris—although the cure rate in both had been practically the same, in Stockholm, until recently, the glands had not been treated, while in Paris they had. Professor Heyman had stated that he was now treating the glands, with the idea that he would get better results with the advanced cases. If this turned out to be the case, it would suggest that the Stockholm method was superior to that of Paris, apart from the treatment of the glands; this might be substantiated now that the glands were being treated.

SECTION OF BACTERIOLOGY, PATHOLOGY, PHYSIOLOGY AND BIOCHEMISTRY.

Wednesday, August 27th.

THE Section met under the presidency of Professor ROBERT MUIR of Glasgow, who conveyed the most cordial greetings of the workers in these subjects in Great Britain to those in Canada, and the regrets of many who had been unable to make the journey. He voiced the appreciation of his companions for the Canadian hospitality which had been extended to them ever since their arrival in Quebec.

MELANIN AND MELANOSIS.

Professor JAMES EWING (New York City) opened a discussion on the physiology and pathology of melanin, dealing particularly with melanoma. He referred to new light that had been thrown upon the subject by the brilliant procedures and results of Professors Masson and Sinnard of the Université de Montreal, and classed melanoma as a disease of the peripheral nervous system. While admitting that his theory could not be regarded as established, and conceding that pigment formation could occur in epithelial cells, he emphasized the difference in behaviour between the cells responsible for the development of true melanoma and those in other types of melanotic tumours, stating that he did not consider epithelium to be the actively functioning type of cell in the former condition.

Professor MATTHEW J. STEWART (Leeds University) dealt particularly with melanosis of the colon, the now well-recognized condition of the large intestine in which a deposition of melanin or melanin-like pigment appeared in the mucous membrane of the gut. He briefly reviewed the earlier literature, pointing out that the earliest description of the condition was given just over a century ago; the first case was reported in England in 1867. Most of the recent work on the subject was German (Edgar, 1898, Pick, 1911, etc.). Heuschen and Bergstrand published a careful and complete study in 1913, and Lubarsch and Borchardt thoroughly reviewed the subject in 1929. His own observations were based on two groups of cases: an unselected series of 600 necropsies at all ages, and a consecutive series of 100 cases of carcinoma of the colon. In the first group the whole length of the alimentary canal was subjected to close naked-eye inspection, but only selected examples were examined microscopically; in the second all the cases were submitted to histological examination. In the first, 11.2 per cent. exhibited melanosis of the colon; in the second, 55 cases showed the condition, and it was discovered in 13 others microscopically. (Heuschen and Bergstrand found 4 naked-eye and 61 microscopic examples in 225 consecutive necropsies.) The condition was rarely seen under the age of 30, and became increasingly common after the age of 60. There was no significant difference in distribution between the sexes. In the second series (carcinoma of the colon) the importance of the part played by obstruction in the causation of melanosis was shown not only by the relatively much higher incidence in these cases, but also by the fact that the pigmentation tended to be more intense above than below the growth. This was so in 33 out of 59 cases. In 17 others pigmentation was present only in the upper segment. The morbid anatomy of melanosis of the colon was well established. The colour of the affected mucosa ranged from greyish or buff stippling through dark grey or brown to intense black. The distribution was characteristic; almost invariably the pigmentation was deepest in the caecum and colon, becoming gradually less intense on passing down the gut; in very advanced cases dark brown or black pigmentation might extend to the anus. The pigmentation was sharply delimited above by the ileo-caecal valve, though Heuschen and Bergstrand were able in 9 of their cases to demonstrate melanin granules microscopically in the mucosa of the lower ileum. Histologically, in the great majority of cases the pigment was confined to the mucous membrane, where it lay within the cytoplasm of large monoculear cells whose precise nature was still unsettled. Appearances suggested that the formation of melanin took place mainly in the surface zone, with a later downward migration of the melanin-containing cells. The epithelium of the mucosa, whether superficial or glandular, was invariably pigment-free, and the solitary follicles of lymphoid tissue were usually so. In a few cases little groups of pigment cells could be seen on the deep side of the muscularis mucosae, and metastasis of pigment to the mesocolic lymph glands also occurred. Recent workers had more or less agreed that the pigment was either a true melanin or intermediate between a melanin and a lipofuscin (or wear and tear pigment). The chief differences between it and skin melanin were that it was more slowly soluble in antiformin and was bleached more slowly by hydrogen peroxide. Since Pick and Brahm found that the pigment from a typical case of melanosis in a woman of 23 showed the same solubility in warm 5 per cent. sodium hydroxide as skin melanin, while that from older persons was negligibly soluble, they suggested that melanin changed in composition with the passage of time. Pick's theory of the source of the pigment now met with general acceptance; aromatic protein disintegration products absorbed from the large intestine were converted into melanin within the connective tissue cells by a tyrosinase-like ferment. This explained equally the importance of prolonged constipation as an etiological factor, since it led to excessive putrefaction in the large gut, the virtual limitation of the process to the colonic

mucosa, and the tendency for the pigmentation to be most intense in the caecum and ascending colon, where absorption was greatest.

Dr. SEYMOUR HADWEN (veterinary pathologist to the Ontario Research Foundation) dealt with melanin formation in animals. He considered that animals were coloured primarily for reasons connected with health. An Arctic animal, such as the snowshoe rabbit, was coloured white externally for warmth. Its coat had four bands of colour, both to attract and to retain heat. The change to white in autumn was structural and not a depigmentation. Stimulation through injury, bites of insects, or bacterial action might intensify hair colour, or else the cells might be injured sufficiently to prevent production of colour. The change from black to white in animals bearing albinotic patches was very delicate, and ended with two cells lying side by side, one producing colour, the other not. Albinotic cells could reproduce themselves and were strongly inherited. Freckles occurred only in old horses, not in young animals. Horses which became white with age and freckled horses invariably had melanotic tumours. Melanotic deposits were common in all parts of the body, but frequently the masses were seen in avascular situations, such as the periosteum, tendons, and serous coats. There was usually no connexion between the tumours and the epidermis. Extensions of the pigmented masses might arise in some cases through pressure from the harness, and were not due to malignancy.

Professor A. T. CAMERON (Winnipeg), dealing with the biochemistry of melanin, pointed out the need for defining a melanin more accurately, and the danger that at present existed through the uncritical tendency so to term any brown or black pigment which exhibited certain physical properties. The analyses of melanins from various sources showed such wide variations as to be valueless. Melanins contained carbon, hydrogen, oxygen, and nitrogen, but it was doubtful if pure melanin contained sulphur or other elements. The most outstanding recent contributions to the biochemistry of the subject were the work of Professor Raper and his colleagues on the action of tyrosinase on tyrosine, and the discovery, by Professor Bruno Bloch, of a specific enzyme, dopa-oxidase, which acted upon "dopa" (dihydroxy phenylalanine). Raper had shown that tyrosinase acted on the amino-acid tyrosine in presence of air to produce initially "dopa," this changing to an indole derivative which was decarboxylated to a red compound. The action of the enzyme ceased at this point, but further slow oxidation ensued, through a colourless stage to dihydroxy indole, which was further oxidized and polymerized to melanin. Bloch's dopa-oxidase, starting with the tyrosine derivative "dopa," probably acted through the same stages. Since two of the purest melanins so far obtained—that prepared from tyrosine by the action of tyrosinase, and that from the urine of melanotic patients by the oxidizing action of potassium persulphate—both contained no sulphur and practically the same percentage of nitrogen, and since Raper had found that melanin from the skin of a negro, and the "ink" of the squid, and from a melanotic tumour, showed no essential difference, it would appear that many melanins were, if not identical, of very similar chemical nature. Melanogen, the colourless precursor, might be the simple indole derivative formed from Raper's red compound, or a substance similar in complexity to melanin itself. There were insufficient data to settle this point. The pigment in Addison's disease was possibly derived from an adrenaline precursor, as Bloch suggested, but more probably was due to failure in output from the adrenal cortex of a product which inhibits pigment formation. In regard to the work of the Italian school, suggesting pyrrol as the precursor of melanin, the available evidence appeared on the whole to be adverse to this view.

Professor G. S. WILSON (London School of Hygiene and Tropical Medicine) read a paper on the diagnosis of undulant fever. He dealt critically with the methods at present available for the diagnosis of Brucella infections. He pointed out that the interpretation of a positive agglutination reaction was often a matter of considerable difficulty, demanding close co-operation between the clinician and the bacteriologist, and stressed the necessity of testing a series of dilutions of serum, stating the correct interpretation of various types of result. The agglutination test was of very real value, but by no means infallible. The blood culture method led through the isolation of the infecting organism to the most satisfactory way of establishing the diagnosis; repeated blood cultures might be necessary and success was by no means uniform. In undulant fever due to *Br. melitensis*, the organism could usually be recovered sooner or later; when the disease was due to the bovine type of *abortus* failure was often met with. Methods involving cultivation from material other than blood, animal inoculation, and the intradermal reaction were also critically discussed. Professor JAMES MILLER (Kingston, Ontario) referred briefly to conditions in Eastern Canada.

Sir KENNETH GOADBY read a paper on the chemical composition and fractionation of the *Staphylococcus aureus*. From a culture on agar he had prepared, he said, an ether extract of a lipoid nature, which, injected into the skin, reproduced the condition of carbuncle, minus the suppuration. He suggested that such fractions might have useful employment in vaccine therapy.

SECTION OF PREVENTIVE MEDICINE.

Wednesday, August 27th.

THE TRAINING OF PUBLIC HEALTH PERSONNEL.

UNDER the chairmanship of the President, Dr. A. S. M. MACGREGOR (Glasgow), the whole morning was devoted to a symposium of "The development of a well-trained public health personnel." Professor J. G. FITZGERALD (Toronto), in his general introduction, examined in turn the variety of types of health worker and the courses available for their instruction at university colleges. He considered the special requirements for those non-medical workers seeking higher degrees in public health, the needs of the public health engineer, the public health nurse, the sanitary inspector, the veterinary inspector, the medical graduate, and the undergraduate medical student. An account was given of the medical students' course established in 1924 in the University of Toronto. The general subject was then considered under five subheadings.

Discussing undergradute medical training in public health Dr. A. GRANT FLEMING (Montreal) described in some detail the course now presented at McGill University. This sought to provide a minimum factual knowledge, to show the student the field of work, and to bring home to him his responsibility for applying this knowledge. It was intended that the preventive aspect of medicine should permeate all the medical teaching. The subjects of the special department were presented to the student throughout the whole five years of his medical training, so as to integrate with his clinical and other studies. In a review of special or post-graduate public health training Dr. DONALD T. FRASER stressed the need for expert technical assistants, who in working for an appropriate B.A. degree should be qualifying themselves to obtain positions in the public health service without the need of further study. The role of the public health nurse was considered in some detail, together with the course now available for her in Canadian universities. The qualifications of candidates for post-graduate degrees or diplomas in public health were examined, together with the content of courses offered. Dr. JAMES RUSSELL ROBERTS (Ontario) said that in many parts of Canada the education and preliminary training of the sanitary inspector was neither satisfactory at the present time nor did it hold out hope for the immediate future. Frequently this official was the Cinderella of the health department, dreaming among the ashes of the past. Dr. Roberts described the highly important work awaiting the sanitary inspector who was a technical expert, and discussed a suitable curriculum of training, which in his view should be related to the work of the provincial universities. In an extempore address on the midwife, her training, supervision, and conditions of service, Sir T. EUSTACE HILL (Durham) referred to the fact that in none of the excellent papers to which he had listened was any reference made to the position of the midwife; he concluded thus that the midwife had no place in the Canadian Health Service—was not controlled and

was not certified. In England, owing to high maternal mortality and high neo-natal mortality death rates, this matter was receiving constant attention, and had been the subject of important reports by departmental committees, the British Medical Association, and the Women's Medical Federation. It was recognized in Great Britain that much of the maternal mortality and neo-natal mortality could be prevented by an efficient midwifery service, which meant the availability of a doctor and trained midwife to every expectant mother. In Canada, or at any rate in the province of Saskatchewan, the maternal mortality was considerably above the persistently high rate of England and Wales. The speaker referred to the low maternal mortality in certain poor districts in London, and in well-administered maternity homes and hospitals, and especially when trained nurse midwifery services were available through nursing institutions, a large proportion being supplied by the Queen's Institute of District Nursing. After enumerating the essential factors in connexion with the training, supervision, and conditions of service of midwives, in respect of which he stressed the importance of the adoption of the recommendations of the Departmental Committee on the Training of Midwives, Sir Eustace Hill said that after passing the examination of the Central Midwives Board the midwife should have three months' practical training in a maternity home, or under an approved highly trained midwife, before being allowed to practise. He urged Canadian health officers and others to give the question of an efficient midwives service careful consideration, and strongly advised them to study the reports of the departmental committees, and the Memorandum of the British Medical Association on a National Maternity Service. He pointed out that in England 70 per cent. of maternity cases were attended by midwives, who had to call in medical assistance should the patient have any abnormality or complication, and that the British Medical Association, in its memorandum, agreed that more cases of midwifery might be safely left to the midwife subject to necessary medical assistance and supervision being available.

Discussing the training of the health visitor, Dr. F. C. MIDDLETON (Saskatchewan) said that preliminary education for the teaching of health should be at least equivalent to that of a girl entering the teaching profession. Her training course should be at an approved hospital. Personality was of fundamental importance. Modern tendencies in the course of instruction were examined, and the part played by the Victorian Order of Nurses for Canada and the Rockefeller Foundation of New York in furthering the training of health visitors was described.

With the exception of Sir T. Eustace Hill's contribution the opening papers will be published in full in subsequent numbers of the *Journal*. A general discussion followed the reading of the papers, most of the speakers concentrating on the subject of the midwives service. The Hon. Dr. E. W. MONTGOMERY, Minister of Health, Manitoba, said that in Manitoba there was great difficulty in establishing full-time rural public health units, because the farmers in sparsely populated districts were not yet prepared to finance schemes. The provincial maternal mortality rate had fallen, but it was still excessive; the proportion of deaths in small hospitals was unduly high. Dr. JOHN W. BONE (Luton) stated that the great hopes aroused by the various Midwives Acts had not been fulfilled. In his view they had failed to secure the right type of women to act as midwives; most of the best types who qualified never actually practised. Preliminary general education was necessary, and post-graduate refresher courses should be freely available for all practising midwives. Only thus might they hope to reach the position of countries like Holland and Denmark, where a reduction of the mortality rate to about 2 had been effected. With regard to experience in Manitoba, the highest proportion of deaths was in small hospitals; he remarked that this concurred with the opinion of the British Medical Association that the safest place for the normal confinement was in the home, and that the hospital was only necessary for an abnormal case or where the home conditions were unsuitable. Small hospitals were very dangerous unless properly constructed, suitably equipped, and, what was of still greater importance, every member of the staff was expert in aseptic and antiseptic methods.

Dr. ROSE MOLLOY (Birmingham) thought it important to attract to the profession of midwifery women of better general education than was customary to-day. Status and salary at present were not sufficiently attractive to induce the best type of women to become midwives. A more thorough system of training should be evolved, as more harm might be done by half-trained midwives than by even untrained women. Inspectors of midwives ought to act in an advisory capacity rather than be critics, and inspectors of midwives ought to be physicians who had had practice and experience in midwifery. Dr. PHAIR (maternal and child hygienist, Department of Health, Ontario) said that there was no public demand in Ontario for a midwives service. From information available there was no large group of pregnant women in that province not receiving medical service. The maternal mortality rate was extremely high; a general interest was being shown by the profession, health authorities, and the public in the solution of the problem, and the possible place of the well-qualified midwife warranted consideration by these interested groups. Dr. DOUGLAS (Winnipeg) stressed the importance of impressing on medical students that the general practitioner could be of great assistance in carrying out the programme of modern preventive medicine among his patients. The trained sanitary inspector was one of the most valuable agents in spreading health propaganda. Dr. A. S. M. MACGREGOR (Glasgow) spoke of the excellent schemes of undergraduate medical training in Canada as exemplified at Toronto, and of the changes required to modify the conventional D.P.H. course, so as to lay stress on applied physiology. He anticipated the development of municipal midwifery services. For the health visitor the first qualification was her temperament. He commended to the Minister of Health of Manitoba the experience of the Highlands and Islands service of Scotland, which might aid him in dealing with the rural problems of Manitoba.

In reply, Professor FITZGERALD said that in Canada the problem of maternal mortality was viewed with as great concern as in the Mother Country, and yet puerperal fever was increasing rather than decreasing. Sir EUSTACE HILL, in his reply, stated that the medical profession was significantly to blame for the present maternal mortality rate, and that it was unfair to throw this, even by implication, on the midwife.

SECTION OF MENTAL DISEASES AND NEUROLOGY.

Wednesday, August 27th.

ABNORMAL MENTAL AND NERVOUS CONDITIONS AT THE MENOPAUSE.

THE President of the Section, Sir FARQUHAR BUZZARD, acting as chairman, opened the session with a graceful tribute to the modesty and generosity of the Canadians in allocating to their visitors the position of honour. He then introduced Dr. GEORGE RIDDOCH (London), who opened the subject by first defining the term climacteric, or involutional period, and thus describing the commoner changes undergone by both men and women during this phase of their lives. He dwelt at considerable length on the physiology of this period, drawing attention to the changes that occur in the functional activity of the so-called ductless glands, and to the manner in which the activity of the autonomic nervous system is changed so as to account, in part at least, for the emotional symptoms which are so constantly a part of the picture in menopausal states. Emotional, vasomotor, and nervous symptoms of the normal climacteric he discussed under the headings premenopausal, menopausal, and post-menopausal, pointing out that in the majority of cases mental and physical symptoms did not put in an appearance at the same time. Although emotional disturbances at this time of life were fairly common, the speaker wished to emphasize that many women were able to undergo the transition to middle age so easily that their symptoms barely disturbed "the even tenor of their way." On the other hand, some were harder hit, and were unable to face the change of life without a breakdown in both physical and mental health. The etiological factors in these cases

were discussed at length under the following headings: (1) constitution and temperament; (2) the emotional and physical background of the woman's life; (3) preconceived notions about the climacteric. Mental states associated with the menopause were classified by the speaker, according to their severity, as psychoneuroses and psychoses. In the psychoneurotic he maintained the symptoms were simply a magnification of disturbances that can be considered as normal at this time of life. Among the psychoses he considered that melancholia was by far the most common, representing about 66 per cent. of psychotic syndromes at the climacteric. Other varieties of mental disorder were referred to as chronic paranoid states and confusional insanities. In considering factors influencing the prognosis Dr. Riddoch stated that, on the whole, the outlook for recovery was good, the duration of illness in recoverable cases being between six and nine months. The paper was concluded with remarks on treatment, under the headings of prophylaxis, glandular therapy, and psychotherapy.

Dr. C. B. FARRAR (Toronto) continued the discussion by presenting a very interesting and instructive series of charts which had been compiled from statistics obtained in the study of cases at the Toronto Psychiatric Hospital. Chart 1 showed the relation between the numbers of men and women admitted during a two-year period and the number of both sexes in the community population. Chart 2 illustrated the ages of females at the time of admission. The peak was shown to be between 20 and 25, with only a slight rise at the involution period. Chart 3 showed that in the case of male admissions the peak was reached at between 30 and 35. Chart 4 showed the admissions according to type of psychosis, and it was pointed out that in 36.3 per cent. the mental disorders were associated with the involutional period. The fifth chart showed the relation in time between occurrence of mental and of physical symptoms in involutional states. The sixth chart classified the cases according to diagnosis, and the seventh listed the outstanding etiological factors in menopausal states as follows: exaggerations of constitutional traits; physiology of menopause; habitual menstrual variations; early involutional changes; psychology of menopause; and factors independent of life epoch. The eighth chart indicated physical disabilities found in the series, and the ninth was an analysis according to physical types—namely, pyknic and asthenic. The former types were noted as being in the minority. The last chart illustrated the prognosis, and it was pointed out that in the series three-quarters of the cases had recovered.

Dr. C. A. BARAGER (Brandon) expressed his appreciation of both addresses, stating that if his opinions did not appear to agree with those of the speakers it would be because his experience in a provincial hospital had been in dealing with more advanced cases. The depressive-apprehensive type of depression he considered to be the commonest mental disorder associated with the involutional period, and he thought it was rather more frequent among women. He differentiated between cases in which there was a history of a former depression and those in which there was none, and considered that the prognosis in the former group was very much better than in the latter. He laid considerable stress on cases of mental disorder of the involutional period in which the symptoms were outstandingly schizoid, and referred to them as late praecox syndromes. He considered that former speakers had not emphasized the psychological factors in the etiology of involutional states. People at this time of life underwent a tremendous change in outlook, which undoubtedly in many cases was so great as to be an important etiological factor in the development of their state. Dr. J. G. MCKAY (Vancouver) prefaced his remarks by saying that his viewpoint would be that of a consultant. In private practice the one thing in which relatives were most interested was prognosis, and he wished to know just how one could distinguish between psychoneurotic and psychotic states. Dr. R. G. ARMOUR (Toronto) confined his remarks largely to therapy as applied in private practice and in hospital. Many patients, he thought, got better much more quickly under supervision in a mental hospital than they did elsewhere.

In replying, Dr. RIDDOCH admitted that it was extremely difficult to draw the line between psychoneurotic and psychotic cases. Psychoneurotics, he thought, were in reality mild cases of melancholia. The outstanding differential feature between the milder and more severe cases, he considered, was that in true psychotics the patient always takes the blame for misfortunes, whereas psychoneurotics project their troubles and tend to lay the blame on others. The psychoneurotic also is more prone to emotionalism and tearfulness; the psychotic is beyond the point of being able to express herself emotionally. Dr. C. B. FARRAR, in his closing remarks, brought out several points of differentiation between mild and more severe cases, and pointed out that early institutional care should be advised where there was anything suggestive of suicidal tendencies.

SECTION OF ANAESTHETICS.

Wednesday, August 27th.

ANAESTHESIA FOR OPERATIONS ON THE GRAVID UTERUS.

DR. RAYMOND E. APPERLY (London), the President, opened the proceedings by thanking the members of the Canadian Medical Association for the cordial welcome extended to members of their British counterpart. He had also brought greetings from the Section of Anaesthetics of the Royal Society of Medicine. Dr. H. W. FEATHERSTONE (Birmingham) read a paper on anaesthesia for operations upon the gravid uterus, outlining the various methods used and stressing the importance of spinal anaesthesia in these circumstances. He was convinced that this method possessed distinct advantages in certain cases, but for routine work it would be difficult to displace nitrous oxide and oxygen. Dr. S. JOHNSTON (Toronto) considered that both pre-medication and post-medication were most important factors. He also expressed the opinion that nitrous oxide and oxygen proved of the utmost value in this type of work. An analysis of 150 operations performed upon pregnant women under this anaesthetic at Toronto General Hospital showed that the highest mortality occurred in toxic patients. Dr. Johnston regarded chloroform as a dangerous drug; in no circumstances would he allow a patient in labour to administer it to herself. If he were handicapped by lack of assistance he would first give ether and then carry out any necessary operative measures. He did not agree with the statement that ether generally caused secretion bubbling and cyanosis; if it was given carefully by the drop method, there should be little or no cyanosis. He had found spinal anaesthesia of great value in diabetic patients, but in those with cardiac conditions a great deal depended upon the extent of the lesion. Professor W. WEBSTER (Winnipeg) thought that in pregnancy an anaesthetic which was both absorbed and excreted rapidly was of prime importance; he therefore regarded ethylene and nitrous oxide of great value, and it was his practice to use one of these as an analgesic. He objected to spinal anaesthesia for the reason that it contracted the circular muscle of the uterus and was therefore prone to delay labour. Dr. BOTSFORD (San Francisco) agreed that the administration of nitrous oxide and oxygen was absolutely safe. She did not practise pre-operative medication because she regarded it as having a deleterious effect upon the child. Ether was used in addition when labour was prolonged, but just before the child was born the mother was flooded with oxygen. Sodium amytol was helpful to the mother, the drug producing a condition resembling scopolamine-morphine narcosis. Several fatalities had occurred, however, in the case of the child. Dr. D. LAMB (Glasgow), on behalf of the Scottish Society of Anaesthetists, thanked the Canadian Medical Association for its hospitality. He commented on the different conditions under which midwifery was practised in North America and in the British Isles. The administration of nitrous oxide must be confined of necessity to hospitals, while for domestic midwifery nothing equalled the administration of small whiffs of chloroform. This could be done by the patient herself; it was perfectly safe and effective, and the popularity of this method spoke for itself. Dr. R. WATERS (Madison, Wisconsin) stated that chloroform was largely used in midwifery in American rural districts. He considered that when spinal anaesthesia was employed, oxygen and carbon dioxide should be used in addition, to maintain

correct alveolar balance. Dr. J. S. LUNDY (Rochester, Minn.) said that recently it had been shown that chloroform had very little effect upon newly formed liver tissue; this probably accounted for the innocuousness of this anaesthetic as regards the foetus. The PRESIDENT commented upon Dr. Lundy's statement. Some years ago he had investigated the action of chloroform upon liver tissue, and he had found that some livers were damaged more easily than others. Perhaps Dr. Lundy had indicated the true explanation. He used spinal anaesthesia in cases complicated with cardiac disease, but thought nitrous oxide and oxygen the ideal anaesthetic for pregnancy.

TECHNIQUE IN ENDOTRACHEAL ANAESTHESIA.

Dr. I. W. MAGILL (London), in a paper, reviewed the methods of endotracheal anaesthesia commonly employed, and described a method of nasal intubation which he had used for the past eleven years with considerable success. Dr. R. WATERS (Madison, Wisconsin) wondered if Dr. Magill had used CO_2 to separate the vocal cords. He also inquired if he employed morphine or other pre-operative medication. He did not like the two-tube method because it tended to wash out CO_2 from the patient; he preferred the single-tube method, with to and fro respiration. Dr. Waters described an inflatable attachment, encircling the catheter, and used to plug the pharynx. Dr. R. HARGRAVE (Toronto) asked if Dr. Magill had experienced difficulty in connexion with preliminary cocainization of the larynx. He had never employed nasal intubation. Dr. S. JOHNSTON (Toronto) described a case in which sudden cyanosis and death occurred during endotracheal gas and oxygen anaesthesia, and inquired if Dr. Magill could put forward any explanation. Dr. BLEZARD (Edmonton, Alberta) put the question whether nitrous oxide produced sufficiently deep anaesthesia for intubation, and Dr. HAYES (New Zealand) whether Dr. Magill interrupted the flow of gases, and at what period the tube was removed. Dr. E. I. MCKESSON (Toledo, Ohio) believed that a great future existed for nasal intubation. He had experimented with the subject, but Dr. Magill's methods had convinced him that he was working on the wrong lines. In America there was scope for improvement in intratracheal anaesthetics. As Dr. Magill had pointed out, the position of the tip of the catheter should be visualized. Dr. LUNDY (Rochester, Minnesota) considered that sudden pressure upon the posterior pharyngeal wall was not devoid of risk. He described a case in which sudden death occurred during this manœuvre. Dr. FEATHERSTONE (Birmingham) inquired whether there was any risk of trachitis. He had seen cases in which the catheter had passed into the oesophagus. Dr. BOTSFORD (San Francisco) described a method of passing the catheter indirectly by means of a stylet. Dr. H. SHIELDS (Toronto) said he was impressed by the simplicity of Dr. Magill's method, and by its adaptability to oral and pharyngeal operations. In reply, Dr. MAGILL said that he did not hesitate to employ CO_2 to widen the vocal cords, or to employ premedication. The anaesthetic was delivered at a low pressure. He had seen no ill effects from the use of cocaine. In conclusion, he said that the main point was dexterity in passing the catheter; it should be well lubricated with vaseline.

SECTION OF ORTHOPAEDICS.

Wednesday, August 27th.

TREATMENT OF CONGENITAL DISLOCATION OF THE HIP.

AT the first meeting of this Section the chair was taken by the President, Mr. E. LAMING EVANS, and Mr. H. P. H. GALLOWAY (Winnipeg) opened the discussion with a paper that is printed in full at page 409, on the treatment of congenital dislocation of the hip. Mr. LAMING EVANS reported the results of manipulative treatment in a series of twenty-five patients with thirty-two dislocated hips, who had been treated not less than ten years previously. They had been examined within the last few weeks, and the functional results reported were: bad, 1; poor, 2; good, 13; perfect, 19. The good results included one anterior transposition and five eccentric nearthroses. The average shortening was less than half an inch, though in a series of fifty untreated congenital hip dislocations with the average age of patient 25, the average shortening was 2½ inches. Manipulation should always be very gentle, and if the first attempt failed two further attempts were made after intervals of seven to ten days. If reduction was still not accomplished, capsulotomy was indicated.

Mr. WATSON JONES (Liverpool) said that the strongest argument Mr. Galloway had brought forward was the freedom from trauma which his methods entailed. But Putti had shown us that if a case could be diagnosed within a month or two of birth it could be completely cured by simple abduction of the hips. There was practically no manipulation and therefore no trauma at all. Between this type of case and the definitely irreducible hip of the adult, there must be a certain proportion of cases reducible by manipulation without trauma. Manipulative treatment should be bloodless, and, provided that no force was used, a simple manipulation did not interfere with subsequent operative treatment. Dr. T. HARTLEY MARTIN (Leasowe) described the application of Putti's method in treating congenital dislocation of the hip in three patients under 12 months of age. In two cases reduction was effected in three months, and in the third case, which was that of a delicate premature child, the dislocation was reduced in twelve months. The secret of success lay in early recognition, and under such circumstances there was no necessity for operation. Mr. W. A. COCHRANE (Edinburgh) said that though operative treatment might be quite safe in the hands of the specialist, we had to legislate also for the general surgeon and the practitioner. Furthermore, conservative measures have advanced coincidently with operative methods. The speaker preferred Denuce's manipulative method because it was so gentle, and in the few cases in which operation was carried out, Kocher's posterior approach was utilized. Dr. GALLIE (Toronto) said that his practice had been strongly affected by a case he had seen in which operative reduction had been complicated by very severe infection of the wound and joint. He reported eighteen private patients suffering from congenital hip dislocation which had been treated by manipulation, and perfect functional results had been secured in all cases but one. He thought that though operation was quite safe in the hands of Mr. Galloway, the average results in the hands of all practitioners were better by manipulation than by operation. Dr. HENDERSON (Mayo Clinic) said that Dr. Galloway was pursuing the only fair course for a scientific investigation. Every case he saw was being treated by operation, so that a true interpretation of the results of operative treatment would be possible. In the speaker's own practice, operative methods were only used when manipulative methods had failed, and in this group of cases the results were very poor.

Dr. GALLOWAY, in replying to the discussion, said that the late changes in the head and neck of the femur and in the acetabulum which had been observed in some of Mr. Laming Evans's cases were due to decalcification and to poor resistance owing to long functional disuse during treatment. The speakers in the discussion had shown him that the surgeons who were practising manipulative methods to-day had made wide departures from the original methods of Lorenz, and for these reasons the objections to manipulation methods lost a good deal of their force. The whole problem became one of early diagnosis, and considerable onus lay on the obstetrician who examined newly born infants with a view to excluding congenital defects.

Dr. A. GIBSON (Winnipeg) read a short paper on semilunar cartilages. He said that removal of the internal semilunar cartilage usually entailed no subsequent disability, and experiments in dogs had shown that after a meniscotomy the cartilage might be replaced by dense fibrous tissue, so as to be indistinguishable from the original cartilage. Specimens were shown of cysts of the external semilunar cartilage. They were probably not congenital, but arose from the synovial sheath covering the popliteus tendon, part of which had frequently to be removed. Cyst formation and calcification in fibrous tissue were also shown in cases of tennis elbow, and in the supraspinatus tendon. Radiograms of calcification in the semilunar cartilages of the knee-joint, and in the triangular fibro-cartilage of the wrist, were also shown.

British Medical Journal.

SATURDAY, SEPTEMBER 13TH, 1930.

CONGENITAL DISLOCATION OF THE HIP.

IT may seem strange that the treatment of congenital dislocation of the hip should still offer ground for discussion not merely about detail, but about fundamental principles, yet, as it cannot be denied that such discussion is necessary, we congratulate the Section of Orthopaedics on having chosen this subject for one of its full-dress debates at the Annual Meeting of the British Medical Association in Winnipeg. The section was fortunate in the opener of the discussion, Dr. Herbert P. H. Galloway of Winnipeg, for not only is he recognized as an authority on orthopaedic surgery, but on the subject of congenital dislocation of the hip he holds clear-cut and strong opinions which are likely to stimulate controversy and thus, it may be hoped, lead to progress. Dr. Galloway's opening paper is published in full in this issue at page 409, and a report of the interesting discussion that followed appears at page 434.

Whether from the standpoint of anatomy and pathology, or from that of etiology, congenital dislocation of the hip presents problems which make its study peculiarly interesting. Its preponderant incidence in females, its preference for certain races and countries, the possible significance of developmental aberrations in its causation, have all raised questions which have not yet been satisfactorily answered. Pravaz, who was perhaps the first to claim to have cured the disability, believed that the foggy sky and damp climate of Great Britain favoured the production of deformities in general; yet it is not here that cases of congenital dislocation are plentiful, but in " sunny " France and Italy. A few years ago Dr. Le Damany estimated the cases in France at 200,000, and this figure was accepted by Professor Potel in his *Traité pratique d'orthopédie*.[1] Professor Putti of Bologna and Professor Galleazi of Milan between them treat 1,000 cases yearly, whereas it may be safely assumed that the cases treated in London in any one year would seldom exceed one hundred. In the United States many cases are met with among the children of immigrant Italians and other continental Europeans, but data are lacking about the incidence of the deformity on the Nordic stocks. In explanation of the sex incidence, it is suggested that an important factor is the lesser obliquity or nearer approach to vertical of the wall of the female pelvis; but there is no precise evidence that such a difference between the male and female pelvis exists in infancy, or, if it does, that it is sufficient to determine a greater incidence of luxation in the female. If developmental aberration is held responsible, it still remains to be discovered why the female sex is so preponderantly affected.

Nearly a century has elapsed since Pravaz first claimed to have cured a case of congenital dislocation by prolonged extension and manipulation. At that time, although a commission of the Academy of Medicine vouched for the cure, such was the state of opinion that the well-known orthopaedic surgeon Bouvier emphatically dissented, declaring that no case of congenital dislocation of the hip had been or ever could be cured. Later Pravaz claimed to have cured a number of cases, but after his death the treatment fell into disuse, and interest in the subject waned until Pacci rediscovered some of the principles underlying Pravaz's method, and these were adopted and further elaborated by Adolf Lorenz. Until Roentgen's discovery in 1895 the diagnosis of congenital dislocation in young children was necessarily uncertain, and this meant that those very cases were liable to be missed which offered the best hope of cure. Coxa vara and luxation have been mistaken for each other by first-rate authorities, and the diagnosis has only been made certain by means of *x* rays. The first great advance in treatment was made by Hoffa of Würzburg, who had treated eight cases by open operation before the publication in 1891 of his well-known book on orthopaedic surgery. In at least one of these cases the treatment was very successful, and on these grounds we would extend Dr. Galloway's " barely thirty years since this disability was generally recognized as having been emancipated from the list of affections regarded as incurable " to over forty years. Hoffa clearly showed the way to anatomical correction by open operation, which involved excavation of the acetabulum and practically reconstruction of the joint. But the operation was severe, and not all the results were favourable; so that when Lorenz " made his triumphal tour of the American clinics," reducing dislocations of the hip by means of manipulation wherever he went, surgeons were carried away by his enthusiasm, and the operative method of Hoffa suffered undue depreciation and neglect. It soon became evident, however, that even treatment by manipulation was not infallible. In a formidable percentage of cases it appeared that the method had done irreparable damage; in not all the others had it succeeded in bringing about a cure. Only some of the defects were to be attributed to manipulation; by selection of cases and the use of gentler and more gradual methods better results were secured, and open operation was reserved as the final resort for obstinate and older cases.

Not all surgeons were content with this compromise, and it must be admitted that the advocates of arthrotomy had the best of the argument on anatomical and pathological grounds. The difficulties created by the hour-glass constriction of the capsule and the shallow or negligible acetabulum can only be overcome with certainty by exposing the parts and removing all obstacles to anatomical correction, and it is probable that most surgeons would adopt that method if they could feel sure that the risks of failure and of inflicting damage were negligible. After all, the disability attending untreated congenital hip luxation, especially in unilateral cases, is too small to justify any great risks on the part of the surgeon. In northern Italy and France, where congenital dislocation is most prevalent, and in Great Britain, where it is comparatively rare, manipulative treatment has been the rule. In the United States, however, Dr. Sherman of San Francisco has for some years treated all cases by arthrotomy, and is entirely satisfied with the results. Dr. Galloway tells us that since 1904 he has followed Sherman's example, and in his opening paper he gives some account of the works by which he justifies the faith that is in him.

[1] Paris, 1925. Reviewed in *British Medical Journal*, February 14th, 1925, p. 312.

LONDON WATER.

MUCH of the water supply of London comes on rain-laden clouds from the Atlantic. The rain falls abundantly on the hills which dominate the watershed of the Thames. Above and below ground it flows then as brooks and rivers or through vast underground lakes towards the sea. It encounters on its journey thousands of contaminations, and comes at last to the Metropolitan Water Board robbed of its pristine purity. It is then lured back by natural and artificial means into the realms of safety. In phrases like these Sir Alexander Houston is wont to embellish and lend colour to the subject of water supply with the express object of quickening interest, for he believes that such a quickening of interest is one of the surest ways to create and maintain a feeling of responsibility. Pursuing this policy, his twenty-fourth report,[1] covering the year 1929, contains an attractive and picturesque description, with photographs, of the service reservoirs of the metropolis, which balance or equalize consumption, and maintain supply when great mains burst or disastrous fires occur. Usually situated at high levels and set like outposts to guard the central stronghold, they act as the sentinels over the water of London. The reader is conveyed from reservoir to reservoir under the author's genial guidance, and for parts of the way in the improving or lively company of Keats, Shakespeare, Tom Hood, and Don Juan. He is also invited to "come down to Kew in lilac time," is told where he can procure a hedgehog, and is entertained with a reflection on eels. He is further regaled with a hypothesis that the collapse of the money market in Wall Street in the autumn of last year was due to the chlorination of New York water. On this theory (with which the author of the report is not to be held as concurring) the non-sporing bacteria in water normally produce a state of psychological equilibrium which is antagonistic to speculation. When the non-sporers are killed by chlorine the sporing germs survive alone and engender speculative fever! Lastly, for the benefit of the householder, there are useful hints on how to avoid burst pipes in frosty weather.

In previous reports the claim had been made that since May, 1916, when the chlorination of part of London water began, about two million consumers had been supplied with chlorinated water without complaint of the presence of the tastes to which chlorine sometimes gives rise. In 1929 the West Middlesex water provided the first exception. The taste was traced to the reaction of chlorine with derivatives from a tarry paint with which the filtered water well at Barnes had been coated. The careful examination of the pre-filtration waters—that is to say, the stored water in reservoirs—was continued as in previous years. Raw Thames water was found to contain *B. coli* in 0.1 c.cm. or less in 57.7 per cent. of samples, while Chelsea stored water showed *B. coli* in 100 c.cm. in 57.6 per cent. of samples—a thousandfold improvement on the raw water. The Barn Elms experiments were also continued, double filtration being employed, first rapidly through primary filters, then less rapidly through secondary filters, with no coagulant in either case. The result has been a final product practically as good as that obtained by normal slow sand filtration, with comparative freedom from algal troubles and a considerably greater output of water per acre of filtration area. At the Walton works, where the Barn Elms method is employed, similar results were achieved.

In the course of an investigation into the occurrence of *B. typhosus* in raw Thames water some thirty samples, each of 500 c.cm., were submitted to examination, and of these two gave a positive reaction. Of some thirty controls, also of 500 c.cm., inoculated with from 6 to 60 typhoid bacilli, or 25 on the average, all but 3 were found positive, the number of typhoid colonies isolated ranging from 1 to 22, with an average of 8. Collation of the two series suggests at least a comparative infrequency of *B. typhosus* in the natural raw water. The medium used was Wilson and Blair's glucose bismuth sulphite iron medium. On a day in August the consumers of water from the Surbiton (Lambeth) works complained of an unpleasant taste and odour. The water in the reservoir concerned was sweet, and the mischief was traced to a main which contained fresh-water mussels and sponges and masses of oscillaria. Reference is made to the work of Adams, who has ascertained that certain leaves and twigs are capable of giving rise to the chlor-phenol, by-product or iodoform taste in chlorinated water. The plants implicated are willows and poplars and the meadow-sweet (*Spiraea ulmaria*), and their reacting constituents are salicylic aldehyde, salicylic alcohol, and in less degree salicylic acid. It appears that salicin, methyl salicylate, and acetyl salicylic acid are not taste-producing. Reference is made also to the activated charcoal filters which have been employed in Germany and the United States to remove tastes from chlorinated waters.

In 1929 the number of routine water samples examined in the laboratories of the Metropolitan Water Board was 15,694. Of these examinations, 4,433 were chemical and 11,261 bacteriological. *B. coli* was absent from 100 c.cm. of Thames-derived water as delivered to consumers in 72.9 per cent. of samples. For the Kent wells the corresponding figure was 98.6 per cent., for the Eastern and New River district wells 93.5 per cent. In addition to the routine examinations some 4,000 samples were examined for special purposes. These numbers convey an impression of the rigid scrutiny of the water supply of London.

[1] Metropolitan Water Board. Twenty-fourth Annual Report on the Results of the Chemical and Bacteriological Examination of the London Waters for the Twelve Months ended December 31st, 1929. By Sir Alexander Houston, Director of Water Examinations, Metropolitan Water Board. London: P. S. King and Son, Ltd. 21s.

THE WINNIPEG MEETING.

IN our present issue at page 427 we begin publication of reports of the proceedings in the Scientific Sections of the Winnipeg Annual Meeting, which ended on August 29th. It is hoped that these summaries will give an idea of the ground covered at each session. The papers introducing the debates will be printed in full in our columns during the autumn and winter. We expect to publish also in early issues of the *Journal* some account of the social events which have formed such a prominent and enjoyable feature of the British Medical Association's visit to Canada. The principal function on the afternoon of Thursday, August 28th, was a special convocation of the University of Manitoba, held in the Winnipeg Winter Club, for the conferment of honorary degrees. Archbishop Matheson, Chancellor of the University, presided. Those who received the degree of LL.D. were Professor W. Harvey Smith, President of the British Medical Association, and Professor A. H. Burgess, Past-President; Dr. S. W. Prowse, Dean of the Faculty of Medicine, Manitoba University; Lord Dawson of Penn, President of the Section of Medicine; Lord Moynihan of Leeds, President of the Section of Surgery; Sir StClair Thomson, President of the Section of Laryngology; Sir Farquhar Buzzard, President of the Section of Neurology; Sir James W. Barrett, of Melbourne; Professor W. E.

Dixon, of Cambridge; Mr. N. Bishop Harman, President of the Section of Ophthalmology, and Treasurer of the Association; and the Medical Secretary, Dr. Alfred Cox. The new President and the nine guests to whom this honour was accorded were introduced to the Chancellor by Dr. Prowse, who was himself introduced by the Hon. E. W. Montgomery, M.D., Minister of Health and Public Welfare for Manitoba. At the annual dinner held on the Thursday evening in the Hudson Bay Dining Room there was a very large attendance, the company numbering 1,500. The toast of "The Empire" was proposed by Lord Moynihan, and responded to by Dr. W. W. White, Mayor of St. John, New Brunswick. Dr. W. W. Chipman, of McGill University, proposed the toast of "Prosperity to the British Medical Association," and Dr. H. B. Brackenbury in reply thanked the citizens of Winnipeg and the members of the Canadian Medical Association for their hospitality. In his response to the health of the guests, submitted by Sir StClair Thomson, Dr. William Gerry Morgan, President of the American Medical Association, said that better results in the teaching of medical science might be secured if there were a yearly interchange of representatives between the leading schools of Great Britain and America. The toast of "The Ladies" (which appeared on a B.M.A. dinner programme for the first time) was proposed by Professor Burgess, and Mrs. Harvey Smith acknowledged the compliment in a few graceful words. During the evening Dr. Cox was presented with a bronze statuette of a buffalo, in appreciation of his work in preparing for the meeting in Winnipeg. This presentation was made by Dr. J. D. Adamson, honorary general local secretary, to whom so much of the great success of the meeting is due.

GASTRIC TISSUE IN THE TREATMENT OF PERNICIOUS ANAEMIA.

INVESTIGATIONS carried out by Sturgis, Isaacs, and Sharp[1] in America, and by Wilkinson[2] and Renshaw[3] in this country, have tended to show that the mucous membrane and the muscular layer of hog's stomach are effective in the treatment of pernicious anaemia. According to Wilkinson, the results obtained from the administration of this diet are slightly better than those following liver therapy, the condition of the patients improving more rapidly, and various symptoms, particularly glossitis and paraesthesias, showing a more ready response. Castle and Locke,[4] by feeding patients suffering from pernicious anaemia with beef that had been predigested in a normal stomach, had previously obtained improvement similar to that which usually follows liver therapy, and their observations had suggested the possibility that pernicious anaemia might be due to a failure of the gastric juice to elaborate some principle normally formed in healthy persons from the proteins of food. "The experiments," said Castle,[5] "are consistent with the hypothesis that the intimate nature of this reaction is a digestion of the protein made by an enzyme working in an acid medium. . . . If this work can be taken at its face value, an analogy is established to the condition present in diabetes. In diabetes the pancreas is the organ at fault, and the physiological defect resides in the internal metabolism of carbohydrates. In Addisonian pernicious anaemia the defect lies in the external manipulation of the protein, and the stomach is the organ that is deficient." Further data relevant to this hypothesis are recorded by H. M. Conner in the *Proceedings of the Staff Meetings of the Mayo Clinic* for July 23rd (p. 205). Conner administered gastric tissue in various forms—namely, as raw whole stomach, raw mucous membrane of entire stomach, raw whole pylorus, raw whole fundus, raw whole stomach muscle, desiccated stomach, or various combinations of these—to 60 patients, 46 of whom were studied in hospital, and as the results from the use of the various proportions and preparations were similar they may for convenience be considered together. The proportion of reticulated erythrocytes rose to 65.8 per cent. in one case, 40 per cent. in another, between 30 and 40 per cent. in six cases, between 20 and 30 per cent. in five, and between 10 and 20 per cent. in thirteen. The patient in whom the increase had reached the highest figure received daily half a pound of the entire thickness of the wall of the pylorus only. The greatest increase in the proportion of reticulated erythrocytes and the number of mature erythrocytes occurred in cases in which before treatment the erythrocyte count was less than 2,000,000 in each cubic millimetre: in the group of patients having a blood count of less than 1,000,000 in each cubic millimetre the proportion of reticulated erythrocytes increased to an average of 24.3 per cent. in under nine days, and the number of erythrocytes to over 2,000,000; in the group having a count between 1,000,000 and 2,000,000 the proportion of reticulated erythrocytes increased to an average of 22.8 per cent. in nine and a half days, and the number of erythrocytes to nearly 3,000,000. The leucocyte count in the whole series increased from an average of 4,873 to 6,464, and the platelet count from 101,540 to 118,080 in each cubic millimetre of blood. The effect on the general symptoms was equally good, but not enough time has elapsed to estimate the effect of the treatment on the neurological condition. In many cases, though not in all, the numbness and tingling were lessened, but so far incoordination has responded less definitely to treatment. Conner concludes that the effect of the treatment on the reticulated erythrocytes, on the mature erythrocytes, and on the general and neurological symptoms in cases of pernicious anaemia is similar to that obtained by means of liver therapy.

[1] Sturgis, C. C., Isaacs, R., and Sharp, E. A.: *Journ. Amer. Med. Assoc.*, 1929, 93, 747.
[2] Wilkinson, John F.: *British Medical Journal*, 1930, i, 236.
[3] Renshaw, A.: *British Medical Journal*, 1930, i, 334.
[4] *British Medical Journal*, 1929, i, p. 1120; *Journ. Clin. Investig.*, 1929, vi, 2.
[5] *Proc. Roy. Soc. Med.*, vol. xxii, Part II, p. 1216.

COSMETICS.

HAS any British dermatologist ever yet written a volume on cosmetics? We do not remember one. That there is a demand for information on the subject from the British medical public is undoubted, for translations of the writings of our Continental colleagues (who apparently are not so frightened of being labelled "beauty doctors") command a ready sale, and it is rumoured that our native publishers would welcome a book on the subject by a British authority, if the scruples of those qualified to supply this long-felt want could be overcome. Since these things are so, medical practitioners who desire instruction in the cosmetic art are compelled to resort to translations of Max Joseph, Saalfeld, etc., but these authors are now liable to be superseded by Kromayer, whose little volume on the cosmetic treatment of skin complaints has lately been translated from the second German edition for the benefit of the English-speaking world. Professor Kromayer has long been known to the medical profession as inventor of the Kromayer lamp, an instrument generally acknowledged to be of great value in the treatment of various deep-seated inflammations of the skin, notably lupus vulgaris and acne. But he has also invented a new system of surgery for cosmetic purposes which is not so well known (at all events in this country). The treatment demands the employment of a dental engine for the actuation of various cylindrical knives, burrs, rasps, drills, etc. The cylindrical knives or punches are of various sizes, and, applied vertically, remove a round disc or column of tissue varying in diameter from 0.8 mm. to 10 mm. or more according to the size of the knife, and

[1] *The Cosmetic Treatment of Skin Complaints.* By Professor E. Kromayer. London: Milford, Oxford University Press. 1930. 6s. 6d.

Kromayer claims that by the employment of these instruments scarring is greatly diminished. He uses them for many different purposes. Among other things, he treats boils by punching out of them a cylinder of tissue, which he makes sufficiently large to remove the whole of the necrotic tissue. This may require the employment of a punch as much as a whole centimetre in diameter. He claims rapid healing in the majority of cases, but admits that it is impossible to be certain of a cure owing to the occasional reappearance of the infective process. This indeed resembles the experience of everyone who treats boils. Whatever the method adopted they usually do well, but sometimes they do not. The punch is also used to open the indolent abscesses of acne, and the comedo is scooped out with drills rather like a dentist's drill. Since, however, "the prick is not altogether imperceptible" many patients jib at this procedure. Kromayer even employs the cylindrical knife for the excision of superfluous hairs in certain circumstances, but he does not despise electrolysis. Still another opportunity for the employment of the cylindrical knife is in the removal of tattoo marks. He punches the tattooed area all over and removes the punched-out pillars of skin with forceps and scissors. Naturally most cases need more than one operation, but it is claimed that the scar left is hardly visible. There is no doubt that Professor Kromayer is a man of great inventive ability and ingenuity, and these special technical methods employed by him deserve attention, although in other hands they might not prove so satisfactory. Apart from these matters the contents of his book consist of an account of general dermatological therapy of such diseases as affect the visible portions of the cutaneous surface. It is evident that the restoration to normality of any of these parts when afflicted by some pathological condition must always have a "cosmetic" value, whether it be formally labelled "cosmetic" or not. To postulate the possession of a special "cosmetic" art is to attempt a meretricious appeal to human credulity and feminine vanity. Perhaps, after all, the stiff-necked British dermatologist is right when he refuses to attach the label "cosmetic" to his essays on dermatological therapeutics.

INTERNATIONAL UNION AGAINST TUBERCULOSIS.

THE seventh conference of the International Union was opened in the great hall of the University at Oslo on August 13th, in the presence of the King and Queen of Norway. The gathering was attended by between six and seven hundred delegates from all the European and a great number of other nations. The triad of questions on the agenda commenced with a discussion of the merits of B.C.G. vaccination methods, appropriately introduced by Professor Calmette. Some of the interest that centred round this subject was naturally due to the recent catastrophe at Lübeck, but as this matter is still *sub judice* all reference to it at the conference was banned. Professor Calmette gave a careful and reasoned summary of the points on which he advocates the use of his strain of attenuated bacilli as a complete means of protection against tuberculosis, maintaining that the culture, given within ten days of birth, would, by passing through the immature cells of the intestinal wall, permeate the lymphatic system. He claimed that all experience had shown that the death rate among children so treated was less than that among unvaccinated infants in contact with open cases of tuberculosis. Restrained support was given for the method by Neufeld of Berlin; and W. H. Park (New York), Sayé (Barcelona), and Heynsius van den Berg (Amsterdam) commended it from clinical as well as laboratory experience. In the course of general discussion B.C.G. came in for some criticism, but on the whole there appeared to be a preponderance of views in Calmette's favour. The second subject on the programme, "Thoracoplasty in the treatment of pulmonary tuberculosis," gave less room for acute controversy, all divergence being merely on details of technique. Professor Bull of Oslo, describing his own experience and that of his Norwegian colleagues, said that he limited the choice of his cases to those in which more conservative treatment had failed and in which pneumothorax could not be induced, and claimed that nearly half of the chronic cases insusceptible to other therapeutics could be cured by this method. Professor Bull favoured the two-stage operation, but this view was not shared by Sauerbruch (Berlin) or by Gravesen (Denmark), except in special cases. Morriston Davies (Ruthin) recommended greater elasticity of method in planning the operation and as regards the length of rib resected. Throughout the debate there was a feeling of hopefulness and a conviction that this procedure had passed the experimental stage. Dealing with the problem of teaching tuberculosis to medical students and doctors, Professor His of Berlin read a very exhaustive paper based on a questionary he had sent to most of the world's universities. He maintained that this subject must not be divorced from general medicine. The instruction of undergraduates was fairly well organized, but post-graduate courses required more development. Sir Robert Philip gave his experience as a teacher of the subject since 1889, and hoped that attention would be concentrated upon the disease more as a general clinical problem and less as an exclusively lung disease. The Italian delegate (Morelli) delivered a full description of the impressive Mussolini Institute which is building at Rome and will be devoted largely to tuberculosis. Many members *en route* for Oslo took the opportunity of visiting Hamburg, where, under the inspiration of Professor Brauer, a varied programme had been arranged by German tuberculosis societies. The newer methods of nutrition therapy were discussed, and the members had the privilege of examining pathological specimens taken from the cases at Lübeck and of hearing Professor Schurmann of Berlin describe the lesions in this large-scale catastrophic experience. From the conference delegates carried away an impression of meetings superbly organized both on the scientific and on the social side, and of generous Norwegian hospitality. It was impossible not to feel that in most countries a great amount of energy was being devoted to research into the problems of tuberculosis.

MILTON'S BLINDNESS.

THE cause of Milton's blindness is one of those fascinating ophthalmological problems which in all probability will never be solved. Briefly, the most favoured diseases are glaucoma, retinal detachment, and choroido-retinal degeneration leading to optic atrophy, possibly due to congenital syphilis; while Mutschmann, a *littérateur* and not a medical man, argues that Milton was an albino, though he accepts Hirschberg's dictum that the blindness was due to glaucoma. In the July number of the *British Journal of Ophthalmology* Mr. Arnold Sorsby reviews the evidence at length, and sums up in favour of retinal detachment. His paper is a very able study of the question, and those who are interested will be well repaid by its perusal. The evidence comes mainly from autobiographical details by Milton in the sonnet to his blindness, in the sonnet addressed to his pupil Syriack Skynner, in *Paradise Lost*, in the *Defensio Secunda*, and in his letter to Philaras. Contemporary portraits of Milton are few in number, and engravings unreliable. Two of the pre-ophthalmoscopic writers on ophthalmology mention Milton's case, Sir William Lawrence holding that the blindness was due to "suffusion," while William Mackenzie thought it due to "amaurosis from congestion or inflammation of the optic nerve secondary to chronic disease of the digestive organs." Glaucoma, as a cause, was first proposed in 1879, when Stern, in his *Life of*

Milton, wrote that he had consulted a "distinguished ophthalmologist," who stated that "some of the features tended to a diagnosis of glaucoma, though others were against such a view." Hirschberg and Shastid follow this statement without giving any reasons. The source is from the letter to Philaras, where Milton states that if he "looked at a lit candle, a kind of iris seemed to snatch it" from him. Milton's sight appears to have begun to fail in the outer field of the left eye at the age of 35 years, and he was quite blind by the age of 43 years. Dufour of Lausanne, in 1909, argued in favour of retinal detachment, complicating myopia. Saurat and Cabannes, in 1924, suggested that Milton suffered from congenital syphilis. The Skynner sonnet shows that when Milton had been blind for three years his eyes looked normal; there had been no degeneration, such as cataract, obviously to mar their appearance. The solo evidence in favour of glaucoma is the "iris," and it is a well-known fact that a halo round a light is not always due to glaucoma; while the description of micropsia, metamorphopsia, the "copious light glittering from shut eyes," and the loss of field in the left side of the left eye are far more suggestive of detachment of the retina than of chronic glaucoma. Sorsby sees no reason to take the suggestion of congenital syphilis seriously, and we think that all impartial readers will agree with him. A parallel might be drawn with regard to the case of Samuel Pepys and his failure of eyesight. Though Pepys never went blind, he had to discontinue his diary at an early age, and was unable to use his eyes for work ever afterwards. Milton was fortunate in having the power to compose his splendid poetry to offset his physical handicap. On the whole, the nature of Milton's blindness is a problem which, on the evidence available, must be considered as insusceptible of definite proof, and therefore to be relegated to the problems proposed by Barham in the *Ingoldsby Legends*:

"Inquire if Orpheus first produced the waltz,
How gas-lights differ from the Delphic vapour,
Whether Hippocrates gave Glauber's Salts,
And what the Romans wrote on, ere they'd paper."

MEDICAL INCUNABULA.

LIEUT.-COLONEL F. H. GARRISON, the great authority on medical history, whose contributions to the *Bulletin of the New York Academy of Medicine* give such delightful instruction, has contributed to the June number of that monthly periodical what is really a guide to the study of incunabula, or the books, pamphlets, and broadsheets printed before 1501, though its value is hardly indicated by the modesty of its title, "Progress in the Cataloguing of Medical Incunabula." Beginning with a history of printing and a reference to the troubled activities of Johann Gutenberg in this "black art," it mentions other early printers who did so much to render possible the revival of learning, and goes on to describe the lives of the chief cataloguers of incunabula. The first to do so on a large scale was Michel Maittaire (1668–1747), who had the privilege of being at Westminster under that vigorous wielder of the cane, Dr. Busby; although he was kept at the study of Greek and Latin some years longer than usual, he was called "puzzle-headed" by Samuel Johnson, and apparently from the character of his entries in the catalogue not without some reason. Henry Bradshaw (1831–86) of Cambridge was the first to define clearly the modern methods and ideals of cataloguing incunabula—namely, to arrange them under countries, towns, and presses, and to advocate the serious study of palaeotypography, which, however, was not established until the beginning of this century by Robert G. C. Proctor (1868–1903) of Oxford and the British Museum, and by Konrad Haebler of the Royal Library of Berlin. It was W. A. Copinger (1847–1910) of Manchester who first conceived "the genial idea" of describing the peculiarities of catalogued incunabula in the vernacular. Thumb-nail sketches of others eminent in this connexion, especially Karl Sudhoff, follow, and attention is drawn to the forthcoming catalogue by A. C. Klebs of more than 3,000 incunabula of medical and biological importance. America is rich in these medical works. The College of Physicians of Philadelphia has 373, and Lieut.-Colonel Garrison attaches to his interesting article a "check-list" of the 446 incunabula in the Army Medical Library, Washington, D.C.

POSSIBILITY OF A VITAL REACTION IN THE DENTAL ENAMEL.

THE possibility of an organic content, and hence of a vital reaction, in human enamel has long exercised the minds of dentists, and the late Mr. Howard Mummery thought he had found evidence of a sclerotic reaction to injury in human enamel. In a communication on the histological evidences of the organic content and reactions of marsupial enamel, with a note on human enamel,[1] which was submitted to the Royal Society by Professor William Bullock, Mr. Evelyn Sprawson claims to show that a vital reaction can be demonstrated in the tubular enamel of marsupials. Allowing for structural and calcific differences, he claims to have found similar reactions in human enamel, and hence argues "that many of the conclusions concerning marsupial enamel must also be true of human enamel." We cannot say that the author presents a very convincing case, and in some of the illustrations we cannot see all that the legends claim—perhaps on account of the difficulty of photomicrography. The investigation is one involving unusual difficulty, both in the preparation and interpretation of the sections, and yet it is of absorbing interest. Every dentist will hope that Mr. Sprawson will continue his researches.

ANNUAL MEETING OF THE MEDICAL ASSOCIATION OF SOUTH AFRICA (B.M.A.).

THE third scientific annual meeting of the Medical Association of South Africa was held at Durban from July 21st to 26th. The Governor-General, the Earl of Athlone, attended the opening session on July 21st, and spoke appreciatively of the high idealism maintained by the medical profession. He mentioned the local difficulty of providing still more effective medical and nursing services for the six million Bantu inhabitants of the country, and emphasized also the importance of establishing and maintaining centres throughout South Africa where radium therapy could be practised. The new president of the Association, Dr. M. G. Pearson, delivered an address on "Tradition in medicine"; this is published in the *Journal of the Medical Association of South Africa* (*British Medical Association*) of August 9th. In that issue also will be found an interesting summary of the scientific and social proceedings of the annual meeting, and also a paper by Dr. A. D. Pringle on pulmonary tuberculosis in South Africa, which was read in the Section of Medicine. Editorial reference is made to the addresses by the Governor-General and Dr. M. G. Pearson; it is pointed out that the problem of co-ordinating professional needs with the obligations of loyalty to a noble tradition and to the public welfare calls for faithful co-operation, a high conception of duty, and the ability to ignore unessential details.

THE KING has appointed Dr. W. Norwood East to be one of His Majesty's Commissioners of Prisons and a Director of Convict Prisons.

WE regret to announce the death, at the age of 89, of Dr. Michael Beverley, who was for fifty years associated with the work of the Norfolk and Norwich Hospital.

[1] *Proceedings of the Royal Society*, B, vol. 106, 1930.

THE BRITISH ASSOCIATION.

ANNUAL MEETING IN BRISTOL.

THE British Association for the Advancement of Science, which held its annual meeting this year in Bristol from September 3rd to 10th, was founded in 1831 at York by a small body of enthusiasts, and it has thus now reached the hundredth year of its existence. The centenary celebrations will be held next year in London.

At the opening general meeting in the Colston Hall the Lord Mayor of Bristol and the Vice-Chancellor of the University extended an official welcome. Sir Thomas Holland, Principal of the University of Edinburgh, who is the retiring president of the association, thanked the city and University for their cordial reception. He mentioned that the council had sanctioned an appeal for a fund to provide for the special expenses of the centenary meeting next year, and also for the more adequate endowment of the association. It was hoped that a sum of £40,000 might be raised, part of which was required in connexion with Down House, and part to facilitate a wider choice of subsequent meetings, as well as to stabilize the grants made in aid of research.

Presidential Address.

Professor F. O. Bower was then inducted by Sir Thomas Holland into the presidential chair, and delivered an address on size and form in plants. He remarked that Down House had now been restored and opened as a shrine for those who treasured the memory of Darwin; one of the events which indicated the close of a famous epoch. Morphology, or the study of form, had been described by Darwin as one of the most interesting departments of natural history, almost, indeed, its very soul. It was therefore fitting that a botanist whose work had dealt specially with form in plants should discuss this year certain morphological questions which presented themselves in the eighth decade since the publication of the *Origin of Species*. After alluding briefly to the flagellata as combining animal and vegetable characters, the president discussed the normal development of the multicellular plants, with special reference in this connexion to the influence of size and to the part played by the "presentation-surfaces" through which physiological interchanges were effected. The relation of form to size seemed to be very general and suggested the existence of a "size-factor," which had a marked influence on the determination of form. The operation of this factor could not be evaded, under natural or experimental conditions, though size might vary under altered conditions of nutrition. Professor Bower concluded his address with illustrations of the valuable services rendered to mankind by botanical experts, and mentioned the urgent need of a greater supply of botanical specialists to work as investigators and advisers, both at home and abroad. He recalled the prophecy of Sir William Crookes in 1898, when the British Association last met in Bristol, that in 1931 there would be a world-wide wheat shortage unless some new agricultural factors came into existence, one then mentioned being an advance in the artificial production of nitrates. Professor Bower remarked that this forecast of new discoveries had been fully realized, and artificial fertilizers were now available in mass. The production of synthetic nitrogen had become a commercial proposition, and the improvement of wheat strains by selective breeding along Mendelian lines had solved the crucial question of food supply; both achievements owed their origin to advances in pure science.

Synthetic Activities of the Cell.

Professor H. S. Raper, president of the Section of Physiology, delivered an address on the synthetic activities of the cell; a discussion followed. He opened by remarking that the old-standing distinction between anabolic and katabolic chemical transformations must not be taken to imply independence; for example, the synthesis of one substance might involve the concurrent breaking down of another. Physiologists had been more successful in elucidating the phenomena of katabolism, but the anabolic cellular processes were at least as fascinating as the synthetic achievements of chemistry, being manifestations of the creative instinct. Although Wöhler discovered rather more than a century ago that urea could be prepared from ammonium cyanate, no further step followed until Kekulé, thirty years later, enunciated the historic hypothesis of the tetravalency of carbon and the mode of linking of the carbon atoms, thus opening up the way to discover the structure of organic compounds produced by living organisms, a matter of prime importance to the physiologist. The animal cell offered a simpler field for study than the vegetable cell, because the choice of raw materials for synthetic activities was limited; it comprised about twenty amino-acids, two purine bases, three pyrimidine bases, three hexoses, glycerol, and higher fatty acids. The synthesis of cholesterol, the bile acids, and the purine bases was still undetermined, though the amino-acid histidine was possibly to be considered their precursor, for structural reasons; but the case of adrenaline was simpler, for it might be derived from either of the two amino-acids phenylalanine or tyrosine by successive oxidation, methylation of the amino group, and loss of carbon dioxide. Details were then given by Professor Raper of the way in which these processes might be brought about, and in the comparable case of thyroxine. The president then passed to the consideration of the production of fat from carbohydrates, mention being made of the possibility of the fatty acids being built up from a degradation product of glucose, of the formation of fatty acids in micro-organisms, and of the mechanisms involved in alcoholic fermentation and the chemical changes in muscular contraction. Physical conditions were also probably of importance in this connexion.

The syntheses of glycogen and the proteins were dealt with in considerable detail, it being pointed out that something more than the mere reversal of enzyme action was concerned. The facts seemed to indicate that only the living cell could bring about such synthesis, and that the precursors of glycogen, or bodies derived from them, must at some time have formed an integral part of the living cell structure. As regards protein synthesis is seemed clear that although the mechanism of joining up amino-acids might be the same in all cells, yet there must be arrangements in the cell which ensured that the protein molecule produced by a particular type of cell would always be built up in a distinctive and probably unvarying pattern. It might be that the cell nucleus was the seat of such synthetic activities, the protoplasm being relatively non-living, but serving possibly as a convenient storehouse for reserve materials needed in the synthetic process, as well as a protective layer between the nucleus and the outside world. The filterable viruses might represent elementary forms of cellular life, and their chemical characters resemble those found in the cell nucleus. Until it was possible to analyse and understand cell behaviour the reactions of the whole organism could not be fully explained. The synthetic breakfast table was, however, likely to remain a myth, for from both the chemical and economic points of view there seemed little likelihood of discoveries being made which would make possible the synthesis of the main foodstuffs—namely, proteins, carbohydrates, and fats.

The Psychology of Early Childhood.

Professor C. W. Valentine, president of the Section of Psychology, delivered an address on the foundations of child psychology, with special reference to their bearing on some problems of general psychology. He insisted that the most reliable evidence as to what was genuinely innate in human nature was to be found in the study of infancy. Instinctive impulses were then seen in their crudest form, and the elementary cognitive processes might be watched evolving from their origins. Moreover, the study of infant psychology tended to correct the unduly prevalent tendency to interpret later childhood too much on the lines of adult experience. Psycho-analysts had asserted that the first four or five years of life were the most important as regards the fixing of character, but, while this was largely true, it was unnecessary to make extreme statements about the absolute fixation of character by the age of 5 or 6. The assertion of another school of thought

that there were few innate instincts, and that any infant treated early enough could be "conditioned" into almost any type of character, could be combated by adducing evidence from early childhood, but it was clear that at the age of 1 or 2 years the infant was particularly sensitive to its environment. Binet's scheme of testing intelligence from the age of 3 upwards had been supplemented by the work of Dr. Arnold Gesell, standardized tests being now available for infants as young as 4 to 9 months, and affording prognostic facilities as regards the later development of intelligence. Details were given of the employment of Gesell's tests, with especial reference to the development of speech.

Professor Valentine considered next the problems associated with the early appearance of "fear" and "imitation," and passed to the discussion of theories of "laughter," which he thought had erred in being far too simple. Observation of his own son led him to define ten causes of laughter, the first being the getting or anticipation of food at the age of 39 days. At 10 weeks there was a laughing response to laughter by others, and also to tickling; at twelve weeks to the sight of a bright or pleasing object. Then followed in order such causes as a simple shock or surprise; repetition of a stimulus; the unfamiliar or unusual; mere recognition (at 8 months, but doubtful); successful accomplishment of some activity, such as standing alone (8 to 12 months); and the sight of the mild discomfiture of another (first noted in the seventeenth month, but possibly to be dated considerably earlier).

The speaker believed that the study of early child psychology would throw a flood of light on to the problem of the fundamental nature of thought processes, and he gave details in this connexion, including the elucidation of the question whether thought could take place without words. Explanation was similarly forthcoming of the loquacity of some adults, and the recognition in early childhood of the existence of such relations as attribution, agency, causation, and likeness, which were apprehended by about the age of 3, when the beginnings of induction and deduction were also manifest. All the errors classified as "childish" could frequently be detected in adult thought. The various types of thought process occurred very sporadically in the early years of life; careful daily observation was therefore essential. More systematic and intensive study of this relatively neglected field of child psychology would result in a rich harvest of contributions to general psychology.

(To be continued.)

PREVENTION OF STILLBIRTH AND INFANT MORTALITY.

THE LEAGUE OF NATIONS' INQUIRY.

THE Health Committee of the League of Nations felt that an international inquiry into the causes of infant deaths might have considerable value when it undertook the task in 1926; the memorandum* of its results which has been published this year justifies this opinion. Investigations have now been carried out in Austria, France, Germany, Great Britain, Italy, the Netherlands, and Norway, and the general plan has been to select certain districts and pursue uniform methods of inquiry in each. The experts appointed by the committee worked in co-operation with the medical practitioners and paediatricians of the districts under investigation, and, upon the notification of deaths by the competent authorities, information was sought from the family doctor, the midwife, members of the staff of maternity and infant welfare centres, the visiting nurse, officials at the registrar's office, and from persons acquainted with the child's environment, such as clergymen and school teachers. The home of the child was also visited, the aim being to investigate the case from the medical, social, and hygienic standpoints. The individual inquiry form used covered the housing and social conditions of the family, the nature of any work performed by the mother during pregnancy, the feeding of the child, and a history of its last illness, and of the post-mortem findings where possible.

*Memorandum Relating to the Inquiries into the Causes and Prevention of Stillbirths and Mortality during the First Year of Life. (Williams and Norgate, Ltd. 3s. 3d.)

Medical Causes of Death.

An analysis of the medical causes of death showed that these varied in different districts, those in which the infant mortality was low—namely, 3.5 to 4.9 per cent.—having a high proportion of cases of respiratory disease, few cases of digestive disturbances, and only a small incidence of acute specific infections. Deaths before, during, and immediately following parturition constitute almost two-thirds of the infant mortality, not only in these districts, but in those where the mortality rate was moderate and high. Digestive disturbances and specific infections play a more serious part in districts where the infant mortality rates reached 5 to 6.9 per cent.; respiratory diseases had much the same incidence as in districts with a low mortality, but their relative importance was less owing to the larger number of deaths from other causes. Districts where infant mortality reached a high rate—namely, between 7 and 9.9 per cent.—were characterized by an increase in the prevalence of digestive disturbances and infectious diseases, and an increase in respiratory diseases, while syphilis and tuberculosis tended to become more important than in the preceding groups of districts. Finally, digestive disturbances were responsible for a large number of deaths in the districts where the infant mortality rates reached figures above 10 per cent., and respiratory and infectious diseases also bulked large; deaths during the obstetrical period attained higher figures in some of these districts than in any of the preceding groups.

Influence of Social Conditions.

Considering these statistics in relation to the housing and social conditions found in the various groups, the committee concludes that where general conditions are favourable the greater number of deaths occur during the obstetrical period and in connexion with respiratory diseases, while in districts where the conditions are unsatisfactory the relative importance of these two causes is less marked owing to the higher proportion of deaths due to infectious disease and digestive disturbances. It also finds that stillbirth, congenital malformations, and obstetrical trauma are relatively more important causes of deaths among families of good social status; the higher proportion of cases of obstetrical trauma suggests that the more frequent use of forceps among families in better social conditions may be partly responsible.

Deaths from unknown causes played an unexpectedly large part in all the districts investigated, and usually occurred during the first week of the infant's life. The stillbirth rate varies little in the different districts, but tends to be relatively more frequent in the higher social classes and to diminish as the scale is descended. As might be expected, unfavourable housing conditions appear to have less effect on pre-natal and neo-natal causes of death than on post-natal causes.

Influence of Multiparity.

A most striking conclusion is reached in relation to the position of the child in the family; the mortality rate is usually lowest among second and third children, and gradually increases with the order of births; the mortality of first-born children is higher than for second children, but lower than the average. The first-born child is, of course, exposed to greater danger as a result of malpresentations and obstetrical traumatisms. No definite statistical evidence was secured to show that ante-natal supervision had a marked effect in reducing infant mortality, but it was extremely difficult to determine how much supervision had been exercised in any individual case during pregnancy. It was fairly obvious, however, from analysis of results that ante-natal supervision was inadequate in all the districts investigated and among all classes of persons.

Conflicting Social Factors.

The point of interest which seems to emerge from the inquiry is the absence of any one distinctive factor in determining the infant mortality rate. Bad housing and unfavourable economic conditions are by no means invariably disastrous in their effects. In the districts where the mortality was very high the houses where conditions were good or moderate far outnumbered those in which they were bad, except in Vienna, District X, where there were 207 deaths under one year, and where 11 dwellings only were good, 85 moderate, and 111 bad. Although the proportion of bad houses to good was higher in these districts than in those where the infant mortality was low, the discrepancy is not so decidedly marked as might have been expected. Similarly, in the matter of ante-natal examination, though a larger number of women had received supervision in the districts with a low mortality, the difference in the numbers from those examined in the districts where the mortality was very high was not sufficient to make lack of such care appear to be the deciding factor. A few figures may be quoted as an illustration: In Oxfordshire, among fatal cases, 66 received ante-natal supervision, 25 did not; in Hedmark 44 were examined and 96 were not, while of 90 cases of stillbirth 21 had some supervision and 69 had none; in Oslo West there had been supervision in 14 cases of stillbirth and none in 5, while among deaths under one year there were 13 cases which received supervision and 8 which did not; in all these districts the infant mortality rate was low. In districts with a very high mortality, such as Pays de Bray, 53 had come under supervision and 106 had not, while among cases of stillbirth the corresponding figures were 20 and 17 respectively; in Mecklenburg-Strelitz 13 cases of stillbirth were examined and 50 were not. The mortality rate seems to depend in every case on an interaction of various factors, one of which may play a part in counteracting others. Thus, favourable hygienic conditions may be set against poor housing and social conditions as in Oxfordshire, or well-organized infant welfare work may help to restrain the native stupidity of the parents in some districts. Occasionally, as in Hedmark, nature triumphantly defies all the rules, and in spite of indifferent housing, and little ante-natal supervision or child welfare work, produces a low mortality rate. In this case the result appears to depend on the prevalence of breast-feeding, and hygienic conditions which are described as "usually favourable."

The Committee's Recommendations.

In its general conclusions the committee points out that, in districts where public health measures have been enforced and economic conditions are favourable, digestive disturbances and infectious diseases have almost disappeared as causes of infant deaths, while the rates for stillbirth and mortality during the first days of life are the same as in districts where the infant mortality is still high. It recommends the establishment of more efficient ante-natal and welfare services in all districts; but though this should have a marked effect in reducing infant mortality, it admits that the causes of premature birth, stillbirth, and deaths during the first days of life are not as yet completely understood, and require further research on the part of obstetricians and paediatricians. For the better supervision of the pregnant woman it advises, in addition to an increase in the number of clinics, a campaign against the employment of untrained women, and the cultivation of a better understanding on the part of the mother of the necessity for skilled supervision throughout pregnancy.

As overwork on the part of the mother appears to have been responsible in some cases for the death of the foetus, the committee suggests an extension of legislation for the protection of pregnant women so as to allow sufficient rest before and after confinement. This could be best effected, it considers, by an increase of financial benefit and the extension of health insurance with provision for dependants. An increase in the accommodation in institutions and the provision of more maternity hospitals is recommended, with facilities for better obstetrical training of both physicians and midwives. Special attention should be devoted to the care of infants during the first few hours of life, especially those who are premature or feeble. The measures advised for the reduction of digestive disturbances include the encouragement of breast-feeding, the extension of infant welfare organization, and measures for the supervision and improvement of the milk supply. General measures would include visiting by the public health nurse, education of the public by means of schools of hygiene, with courses open to all members of the community. The provision of post-graduate courses for both doctors and midwives is especially urged, a suggestion also included in the projected scheme for a national maternity service. Preventive measures against syphilis and tuberculosis should be used to the full, and the public should be taught how very easily a mild respiratory disease in an adult can give rise to a serious condition in an infant. Although the recommendations of the committee embody no startling new suggestion, their application would cover a wide field, and would have the effect of co-ordinating and extending the present measures for the protection of infant life. It is curious, however, that it includes no reference to an improved housing scheme among its suggestions.

Scotland.

Health of Glasgow in 1929.

IN a preface to his report, the medical officer of health, Dr. A. S. M. Macgregor, points out that the estimated population of Glasgow, 1,160,720, is a very tentative one, and he looks forward to the forthcoming census of 1931 to afford really detailed and accurate data concerning the movements and vital statistics of the population. The report states that the birth rate during 1929 was 19.6 per 1,000—the lowest rate yet recorded for the city. The rate varied from 28.8 in Mile-end ward to 6.2 in Kelvinside. In the latter ward, with a birth rate lower than ever recorded in any ward, there was actually a decrease of almost eight for every thousand of the population. The marriage rate for the city, of 8.5 per 1,000, was very similar to that of recent years. The death rate of 15.3 per 1,000 compared unfavourably with those of the preceding four years. The increase was entirely due to the high rate (25.2) during the first quarter, when pneumonia, influenza, and other respiratory diseases affected the city with great severity. The problem of pneumonia is recognized as of supreme importance, for, as the report observes, the history of the city's health has become largely the history of its respiratory diseases. A serious question is that of hospital accommodation for the victims of respiratory disease, the existing facilities being taxed beyond their capacity at a time, such as the month of January, 1929, when there was a combination of an epidemic of influenza with very trying weather conditions. Dealing with tuberculosis, Dr. Macgregor points out that the death rate from this disease is now one-quarter of what it was sixty years ago. There is, however, one disquieting feature. While there is a remarkable fall in the death rate from pulmonary tuberculosis at later ages, practically no impression is being made on that between the ages of 15 and 25. With regard to venereal disease, the report states that the number of new patients was slightly less than in 1928, but the aggregate attendances at the treatment centres were appreciably greater. The difficulties of obtaining information about patients have made it impossible as yet to give a definite opinion with respect to the later results of treatment, or to utilize fully the experience of the clinics for the advancement of medical knowledge as to the incidence and consequences of these diseases. A considerable part of the report is devoted to housing, and it is pointed out that, although the housing situation in general has improved greatly of recent years, overcrowding in one-apartment houses has apparently diminished very little since the war. The really important matter at the present time continues to be the provision of houses within the competence of the small wage earner. The year registered still another step forward in the campaign for a purer atmosphere.

New Aberdeen Professors.

Appointments to two chairs in the University of Aberdeen are announced to take effect on September 30th. Dr. James Ritchie, at present Keeper of the Natural History Department of the Royal Scottish Museum, Edinburgh, succeeds Sir Arthur Thomson as Regius professor of natural history, and Dr. David Campbell, *M.C.*, Pollok Lecturer in pharmacology and therapeutics in the University of Glasgow, succeeds Professor C. R. Marshall in the Regius chair of materia medica. Dr. David Campbell was born in Ayrshire, and received his education at Ayr Academy and Glasgow University. After graduating M.A., B.Sc., he obtained the degrees of M.B., Ch.B. in 1916 with honours, and in 1926 proceeded M.D., again with honours, and with the added distinction of the Bellahouston gold medal. As an undergraduate he took a prominent part in the various activities of academic life, and held the positions of convener of games in the Union and of president of the Medico-Chirurgical Society. In 1916 he joined the R.A.M.C., holding on demobilization the rank of acting-major and being awarded the Military Cross. On his return he was appointed assistant to the professor of materia medica and therapeutics at Glasgow University, and in 1921 he became Pollok Lecturer. During 1925–26 Dr. Campbell engaged in research work, lecturing and giving instruction in laboratory methods in the department of pharmacology of the Johns Hopkins University, Baltimore. He has acted as examiner in materia medica at Glasgow, St. Andrews, and Aberdeen Universities. Dr. Campbell has also taken an active part in hospital work, and is at present a physician to the Glasgow Western Infirmary.

Prevention and Treatment of Diphtheria in Dundee.

The medical officer of health of the city of Dundee (Dr. W. L. Burgess), in his report for the year ended December 31st, 1929, states that this period was satisfactory in his area so far as diphtheria is concerned. There were 437 notifications, as against 623 in 1928, and the thirteen deaths gave a case mortality of 2.97 per cent., the lowest figure yet recorded in Dundee. The steady fall in the fatality of diphtheria seems to be directly related to the active adoption of measures designed to ensure early administration of the specific remedy, and the year's experience supports the view that deaths would be less frequent if antitoxin was administered at once in every case in which the possibility of diphtheria could not be immediately excluded without assistance from the laboratory. The arrangements made in Dundee for the free supply of antitoxin and of outfits for its administration have been improved, and any doctor who applies to the department of the medical officer of health can obtain an outfit, to be retained by him for use in an emergency, a fresh outfit being supplied for one that has been used. Moreover, every outfit is exchanged at the end of a month, in order to ensure the potency of the antitoxin and the sterility of the syringe. Active immunization by toxoid-antitoxin and Schick testing are not favoured by the general public. Dr. Burgess states that it is very difficult to stimulate and sustain interest among parents in this subject when diphtheria is not epidemic and the danger is not imminent. In 1929 there were 497 Schick tests carried out in Dundee, and it was found that grouping the patients under three age groups—namely, under 5 years, 5 to 15 years, and over 15 years—positive reactions were obtained respectively in 6.38, 10.62, and 21.58 per cent. Altogether 227 persons received three intramuscular injections of toxoid-antitoxin at intervals of one week, including fifty of the persons who had been tested and found Schick-positive. It is interesting to note that four notifications of diphtheria concerned persons who had been tested or immunized during the year; in two of these cases the diagnosis of diphtheria was not accepted; one had received a third immunizing dose on February 4th, 1927, and was notified as a case of diphtheria on October 1st, 1929, when the diagnosis was confirmed clinically and bacteriologically; the other, found to be Schick-negative on August 9th, 1929, was notified as a case of diphtheria on November 4th, and though the diagnosis was confirmed clinically all the swabs were negative.

Ancient Leper House at St. Andrews.

During digging operations on St. Nicholas Farm, opposite the East Sands, St. Andrews, a number of human bones, evidently of great age, have been unearthed. The farm stands on the site of an ancient leper house known as St. Nicholas's Hospital. So far as existing knowledge goes, St. Nicholas's was one of the earliest leper houses in Scotland, having been founded between 1177 and 1214. As on the Continent, some of the leper hospitals in Scotland, besides serving for the isolation of the infected, were founded and endowed as religious houses. From charters still in existence it appears that St. Nicholas was so dedicated. If so, not a vestige of the religious buildings remains; but there is good reason for believing that the finding of the bones, which are stated by Dr. Lennox of St. Andrews University to belong to the fourteenth or fifteenth century, has revealed the site of the burial place of the lepers who died in the hospital.

William Mackenzie Medal.

The William Mackenzie medal "for original contributions to ophthalmology of outstanding merit" has been awarded to Professor J. van der Hoeve of Leyden, Holland. He will deliver an address at the Glasgow Eye Infirmary on October 3rd, at 8.30 p.m., on the subject of ophthalmology in its relation to the other branches of medical science.

Ireland.

St. Patrick's Hospital, Dublin.

THE Governor-General of the Irish Free State recently visited St. Patrick's Hospital and performed the opening ceremony of a new wing and a number of additional rooms for the special treatment of patients. The new wing consists of a fine three-story building, with vita-glass windows. The rooms are all fitted out in a bright manner, with modern conveniences and appliances. The roof, which is flat and railed in, commands a splendid view of the city and Phoenix Park. Introducing the Governor-General, Chief Justice Kennedy said that the hospital was one of the most historic institutions in Dublin, being founded by Dean Swift by a bequest of virtually all his property under his will. It was constituted shortly after his death by a charter, which was the first State recognition of the institution, granted in the time of King George II, in the year 1747. Several other necessary additional charters were granted, as a result of which the institution felt itself within the eye and favour of the State. It was the first hospital devoted to the treatment of mental diseases in Ireland, and for many years the only one. The present additions had all been made out of the funds of the institution, which had been wisely administered. There had not been, nor would there be, any appeal to the public for funds. The Governor-General said he was glad to be associated with the opening of the new building. He need not enter into details as to the additional services which it would enable St. Patrick's Hospital to render to the mentally afflicted. The important points to recognize were that it would afford better facilities for methods of treatment which had in recent years been found to be beneficial, and that the already high percentage of recoveries among patients should consequently be raised in the future. History dwelt on the personally pathetic side of Swift's generous bequest. It did not dwell on the difficulties of his executors in realizing that portion of the bequest which consisted of loans recoverable from poor men trying to develop business in Dublin. Swift's practical sympathy with poverty or suffering did not begin to operate at his death, though his bequest made it possible to found the first, and for half a century the only, hospital in Ireland for the relief of mental sufferers. Among the distinguished medical men who had been associated with it must be mentioned one physician who was publicly thanked for his sympathetic efficiency: Dr. Emmet, the first paid physician, was the father of Robert Emmet. The Governor-General did not doubt that this hospital and its branch at

Lucan would continue to preserve the eighteenth century traditions of charitable helpfulness and of sympathetic efficiency, and that its governors would always, as now, recognize professional efficiency by removing obstructions to the application of steadily advancing medical knowledge. Dr. Leeper, medical superintendent, said that in 1731 it was in Swift's mind to build a hospital called Bedlam, in Dublin. In 1735 there was issued from his garret in Morefields—then the site of Bedlam—a scheme for the foundation of a hospital for incurables. This hospital for incurables was to admit incurable fools, incurable rogues, incurable liars; and the incurably vain and envious were to be eligible for admission on an urgency order. Swift suggested that, at the foundation, he himself should be admitted on a certificate as an incurable scribbler. They had recently obtained a photograph of a letter written in 1735 by the Dean to Eaton Stannard, Recorder of the city of Dublin, setting forth his intention to found St. Patrick's Hospital. In 1740 Swift wrote:

> "He gave the little wealth he had,
> To build a house for fools, or mad,
> And showed, by one satiric touch,
> No nation wanted it so much."

It was not until 1815 that Grangegorman Mental Hospital, the parent of all the district mental hospitals in Ireland, was erected. Dean Swift stated, with prophetic foresight, that if a hospital extended from here to the Phoenix Park there would be always more applicants for admission than there would be room for. This prophecy, in its partial fulfilment, explained the extension which His Excellency was there to open that day. The governors found extension necessary because of the larger number of patients voluntarily seeking treatment; this voluntary coming forward was due to the gradual dissipation of the old idea of a difference between disease of the brain and nervous system and diseases of other organs, and the growth of a more rational outlook on the causation and treatment of mental diseases. The governors of the hospital had provided them with every means for carrying out every modern therapeutical method for the alleviation and cure of all forms of mental disease, and the recovery rate for the past thirty years had never fallen below 50 per cent. of the admissions. This figure did not include many patients who had been so far relieved as to live at home with their relatives and lead happy and useful lives. That the work of the hospital was appreciated was proved by the fact that patients were daily admitted from all over Ireland, North and South (for insanity had no boundary, though sanity might have), and that more patients had been admitted during the past ten years than were admitted in the previous fifty years of the hospital's existence.

Immunization Against Diphtheria.

Dr. M. J. Russell, medical officer of health, in his report to the Dublin City Commissioners, states that in 1928 there were notified to his department 407 cases of diphtheria, and 500 cases in 1929. Notwithstanding that they had a well-equipped disinfecting station and adequate hospital accommodation for the isolation of patients they did not seem able to make any satisfactory impression on the incidence of this disease in the city. About half the patients were of pre-school age, and two-thirds of the deaths of those afflicted occurred in that group. Dr. Russell was convinced that the only effective means of eradicating and preventing the disease was by immunization. He had selected Dr. Denis F. Hanley, Cork Street Hospital, to carry out this work at the Carnegie Centre at a fee of £2 2s. per session of two hours a week, and the Local Government Department approved the arrangement. In addition, he proposed to supply the necessary serum to suitable children's hospitals where the work of immunization might be undertaken. A sum of £400 had been provided in the current estimate to cover this service. On the other hand, there might be a considerable saving by the reduction of the number of cases of diphtheria to be dealt with in fever hospitals and chargeable against public funds, whilst such a result from the public health point of view would be of inestimable value.

Problem of the Feeble-minded.

Professor John Cooke, M.A., in a recent address on feeble-minded children, stated that when Queen Victoria came to the throne there was not a single Act of Parliament specially intended to shelter children from the wrongs inflicted on them in any one way. At the close of her reign there were about 100 Acts in which children were concerned. Ireland has shared in all the benefits of this work for children, and here in Dublin in the forty years of the activities of the National Society for the Prevention of Cruelty to Children no fewer than 100,000 children had passed through the hands of its able and devoted officers. Every effort was made by those interested in the mentally deficient to get the British measures extended to Ireland, but this was not done, due to that perverse parliamentary action which "did not apply to Ireland." That Ireland sorely needed the mercy extended to the afflicted was shown by the estimate made in 1906. There were 25,415 mentally afflicted persons in the country outside of asylums, and 66 per cent. were in immediate need of provision being made for them, as against 44 per cent. in England and 34 per cent. in Scotland.

England and Wales.

Vital Statistics for 1929.

SOME of the figures recorded in the tables that make up the Registrar-General's *Statistical Review of England and Wales for the Year 1929*[1] are in marked contrast with those of the previous year. In that year a number of "records" were established, most of them indicative of improvement in the public health. The birth rate was 16.7, which, except for the rate in 1927, was the lowest on record. The standardized death rate—namely, the rate that would have been recorded if the sex and age constitution of the population had been the same as in 1901—was 9.9, lower than in any other year. The death rate of infants under the age of one year was 65 per 1,000 births, also a record figure. The mortality from epidemic diseases was far less than in the previous year, notably the death rate from influenza, which was the lowest since 1914. The mortality from diseases of the respiratory system was the lowest recorded. On the other hand, the crude death rate from cancer (1,425 per million living) was higher than in any previous year, and maternal deaths from puerperal sepsis and accidents of pregnancy and childbirth reached 4.42 per 1,000 live births—the highest figure recorded in the eighteen years for which comparative figures were available. In 1929 the birth rate fell to 16.3, a figure even lower than that recorded for 1927. On the other hand, the deaths of infants under one year of age were equal to a rate of 74 per 1,000 live births, or 9 per 1,000 above the rate recorded during 1928; and the general death rate rose to 13.4 per 1,000 persons living, representing a standardized rate of 11.5, which was higher than any since 1919, when the crude rate was 14, a figure based on the deaths of civilians only. These increased rates were due almost entirely to the high mortality from respiratory and circulatory diseases and to the epidemic of influenza during the abnormally severe weather in February and March. In the March quarter the general death rate actually rose to 20.9, no less than 5.8 per 1,000 above the average for the first quarter of the eight preceding years, while the rate for the rest of the year was slightly below the corresponding average for the same period. With the exception of the pandemic of 1918–19 the epidemic of influenza was the most severe that had been experienced in this country since 1890–91, the mortality being 734 per million persons living, against only 196 in 1928. The mortality from respiratory diseases rose from 1,507 per million in 1928 to 2,104 per million in 1929, and the mortality from circulatory diseases reached the record figure of 3,030 per million, largely owing to the deaths of elderly persons during the severe

[1] *The Registrar-General's Statistical Review of England and Wales for the Year 1929.* (New Annual Series, No. 9.) Tables. Part I, Medical. H.M. Stationery Office. 1930. 7s. 6d. net.

weather of the first quarter. The death rate from cancer was 1,437 per million persons living, continuing the steady though slight increase that has been taking place in recent years, and representing the highest crude rate on record. The increase affected both sexes, but females rather more than males. There was a slight decline in the maternal death rate from puerperal sepsis and accidents of pregnancy and childbirth (4.33 per 1,000), but the improvement was in respect of accidents of pregnancy and childbirth, the death rate from which fell from 2.63 to 2.53, the rate of mortality from puerperal sepsis having actually undergone a very slight increase from 1.79 to 1.80. It may be noted that the puerperal mortality rate is still above that experienced in any of the years 1921–27. The suicide rate, which had declined in 1928 from 125 to 124 per million living, rose in 1929 to 126, the highest figure on record. The female suicide rate (73) was higher than in any previous year, and the male rate (183) was only 1 per million less than the male record in 1927. Deaths returned by His Majesty's coroners as resulting from motor accidents rose from 4,492 in 1927 to 5,251 in 1928 and 5,799 in 1929. Excluding deaths from collisions between two different types of vehicles, the deaths caused by motor cars increased from 1,550 to 1,660, by motor cycles from 1,043 to 1,162, and by motor vans, lorries, etc., from 936 to 1,162.

The Red Cross Rheumatism Clinic in London.

The British Red Cross Society's clinic in Regent's Park for the treatment of rheumatism, which H.M. the Queen declared open last March, reopened on September 1st after being closed for a month. Extensive internal reconstruction has been carried out, and the accommodation has now been practically doubled. A report on the results of the first five months' work states that from the start the numbers attending for treatment were much bigger than was anticipated, and it was found necessary to close down the clinic during August so that adjustments could be carried out in the internal organization to enable a greater number of patients to be treated. From the beginning of the year applications began to be received, and when the clinic closed nearly 300 applicants were waiting for appointments, and over 200 women—the number of women patients, as is usual in all rheumatic clinics, has always exceeded the number of men patients—were awaiting treatment. In future the clinic will be open from 8.30 a.m. to 9.30 p.m. This, with the structural changes, the increase in the number of dressing rooms and waiting rooms, the duplication of equipment, and the appointment of additional staff, will enable patients to be passed through much more quickly. In the past men and women have been treated on alternate days; arrangements have now been made by which both sexes can be treated on the same day. During the period it was open 24,986 treatments were given. A gratifying sign was the steady growth in numbers of patients attending; there was also a steady increase in the number of patients sent by friendly societies, largely at whose instance the Red Cross Society decided to undertake its campaign against rheumatism. Apart from treatment, useful work was undertaken at the clinic in the form of diagnosis, and in the weeding-out of patients who were not suffering from rheumatism. Records are being kept of the occupations of all patients attending, and it is hoped that much information about the occupational causes of rheumatism will be obtained. Considerable use was made of the clinic by private patients; it is hoped that their numbers will increase, and so help to finance the treatment of patients unable to pay the normal fees; in July alone over 1,000 treatments were given on the private floor. Five honorary visiting physicians, with fifteen clinical assistants, started work at the clinic when it reopened. The staff now consists of a medical registrar, the sister in charge, with sisters in charge on each floor to assist her, fifteen masseuses, ten masseurs, as well as a lady almoner and her assistants. Six new consultants—a dental surgeon, a radiologist, an orthopaedic surgeon, a throat specialist, a surgeon, and a gynaecologist—have been appointed. For patients sent by approved societies the course of treatment, which involves nine attendances, costs 25s., with subsequent courses, if necessary, at 20s. For private patients treatments cost 10s. 6d. each, in addition to a consultation fee to the consulting physician of £2 2s. World-wide interest has been taken in the clinic, and deputations from Austria, Germany, France, Holland, the United States, and other countries, most of which already have rheumatism clinics of their own, have come to inspect it.

Correspondence.

PERFORATING DUODENAL AND GASTRIC ULCERS.

SIR,—Mr. J. H. Watson's valuable paper in the *Journal* of August 2nd (p. 169) on acute perforating duodenal and gastric ulcers interested me greatly, and I should like to make a small contribution to the records of the earlier cases, if only to bring due credit to British surgery.

My attention was particularly directed to these cases in 1896, when, in consultation with Dr. Bremner of Exeter (afterwards of Canterbury), I saw a woman, aged 25, who had been seized with severe abdominal pain two and a half hours after a meal consisting of a meat pasty and cocoatina; six and a half hours after the attack I had no difficulty in diagnosing, at any rate to my own satisfaction, the existence of a perforated gastric ulcer. To my surprise and deep regret the admitting surgeon at the hospital did not concur, but gave it as his opinion that the patient was suffering from "ovarian haemorrhage"! Thus no operation was undertaken, but three days later at a post-mortem examination a perforation of the stomach was found with portions of the pasty free in the peritoneal cavity.

I was then convinced that this subject had not received sufficient consideration, and in 1897 I read at Cambridge a thesis for the degree of M.D. dealing with this subject among others.

I had, of course, to make a careful investigation of the bibliography, and the following references are of interest in this connexion.

Mr. Pearce Gould, opening a discussion on the subject in the Surgical Section at the Annual Meeting of the British Medical Association at Bristol in 1894 (*Journal*, 1894, vol. ii, p. 859), mentioned six successful cases—namely, those of Taylor, Barling, Kriege, Morse, Maclaren, and Telford; he added that Mr. Henry Morris permitted him to mention a seventh, but he gave no references. Mr. Hastings Gilford read a paper before the Reading Pathological Society (see *Journal*, 1893, vol. i, p. 944) giving a list of seven cases previously recorded, but he seems to have had great difficulty with his references.

However, I was able to collect by 1897 no fewer than 75 cases of operation for acute perforation, and the following ones have a bearing on priority.

Fatal Cases.

The first recorded operation which I found was one reported by Simon and Barling which was performed on July 16th, 1891 (*Birmingham Medical Review*, August, 1891, p. 108): operation six hours after perforation—death.

The second was performed on October 14th, 1891, and reported by these two authors (*Journal*, 1892, vol. i, p. 63, and also in the *Birmingham Medical Review*, September, 1893, p. 131): operation about ninety hours after perforation, which occurred on October 10th—death.

Maclaren of Carlisle reported an operation performed in October, 1891 (*Journal*, 1894, vol. ii, p. 863), about nine hours after perforation—death.

A fourth operation was performed by G. E. Anson, Wellington, New Zealand, on September 11th, 1892 (*Lancet*, 1893, vol. i, p. 469), twenty-four hours after perforation—death.

Hastings Gilford performed an operation on October 19th, 1892 (*Journal*, 1893, vol. i, p. 944), ten and a half hours after perforation—death.

Early Cases of Recovery.

Haward and Owen reported at the Clinical Society on January 13th, 1893 (*Journal*, 1893, vol. i, p. 118), without giving the date, a case operated on about eighteen hours after perforation. The ulcer was attached to the anterior abdominal

wall, and a drainage tube was inserted. The patient was well one month after the operation. This case was mentioned by Mr. Pearce Gould at the Bristol Meeting of the British Medical Association in 1894.

On June 22nd, 1893, Hastings Gilford operated eight and a half hours after perforation (*Lancet*, 1894, vol. i, p. 1369). He definitely states that he sutured the ulcer, irrigated the peritoneum, and closed the abdomen except for a drainage tube. Recovery ensued. This appears to be the first recovery following this procedure.

On February 4th, 1894, Maclaren operated on a case nine hours after perforation. He states that flushing was very thorough, but he does not record the treatment of the ulcer; recovery ensued (*Journal*, 1894, vol. ii, p. 863).

On March 13th, 1894 (*Lancet*, 1894, vol. i, p. 671), Morse of Norwich reported a case, without giving the date, in which he operated five hours after perforation. He states that the perforation was closed with Lembert sutures, that the abdomen was washed out, and the external wound closed; recovery ensued.

I may, perhaps, conclude by mentioning two interesting points which emerged from my collection of cases. In 71 cases in which results were given, there were 29 cases of recovery, in only 6 of which did the interval exceed 10 hours. In 42 cases in which death ensued, there were only 7 in which the interval was less than 10 hours. Several surgeons appeared to be very hazy about the surfaces of the stomach; thus, such records as "I drew up the stomach and found the perforation on the posterior rather than the anterior surface" were not uncommon. Attention was also drawn to this point in a new edition of Greig Smith's book which appeared a few months after I had read my thesis.—I am, etc.,

Exeter, Aug. 21st. RUSSELL COOMBE.

SIR,—I have just noticed that Mr. John H. Watson of Burnley, in his very interesting paper on perforated duodenal and gastric ulcers (August 2nd, p. 169), has quoted some figures which he attributes to me dealing with my cases from 1903 to 1927, and showing a mortality of 25 per cent. I do not know where Mr. Watson can have got this information because I am not aware that I have published any communication on this matter since the time of my lecture before the Hunterian Society in London in January of 1925. That lecture was reported in the *Lancet* and the *British Medical Journal*, but it was not published in extenso. At that time I quoted my cases arranged in a table as appended (I), and showing an overall

TABLE I.—*Perforated Gastric and Duodenal Ulcers.*
Excluding localized perforations (shut off from the general peritoneum), incomplete operations (drainage only, without suture of the perforation), and cases not operated upon. (To end of 1924.)
Personal Statistics, Professor Grey Turner.

No. of Hours of Perforation. In 6-hour Periods.	Total No.	Recoveries.	Deaths.	Percentage of Deaths.
Up to 6	35	34	1	2.85
7 to 12	63	56	7	11.11
13 to 18	20	16	4	20.00
19 to 24	15	10	5	33.33
Over 24	14	8	6	42.85
Grand Total ...	117	124	23	15.64

All cases operated upon within twelve hours: total, 98 cases with 8 deaths, or 8.16 per cent.

mortality of nearly 16 per cent. I have now brought my cases up to the end of 1929, and in order to get a reasonable series for statistical purposes I have, with his permission, added the particulars of 208 cases operated upon by my friend Mr: Norman Hodgson, who was for many years my assistant, and whose methods and ideas on the subject are practically identical with my own. As a result I am able to present a second table (II) dealing with 365 cases and an overall mortality of 15.06 per cent. Now that our students and practitioners are becoming more familiar with the diagnosis of this emergency, and that transport is so very much improved, I think it is reasonable to expect that most cases should reach surgical aid within twelve hours. If that could be done, then probably

TABLE II.—*Perforated Gastric and Duodenal Ulcers.*
Excluding localized perforations (shut off from the general peritoneum), incomplete operations (drainage only, without suture of the perforation), and cases not operated upon. (To end of 1929.)
Personal Statistics, Professor Grey Turner and Mr. Norman Hodgson.

No. of Hours of Perforation. In 6-hour Periods.	Total No.	Recoveries.	Deaths.	Percentage of Deaths.
Up to 6	119	115	4	3.36
7 to 12	148	129	19	12.83
13 to 18	40	33	7	17.5
19 to 24	21	15	6	28.57
Over 24	37	18	19	51.35
Grand Total ...	365	310	55	15.06

All cases operated upon within twelve hours: total, 267 cases with 23 deaths, or 8.61 per cent.

we might expect a mortality of something under 10 per cent., which I should consider not ideal, but reasonable, considering the extreme gravity of this calamity.—I am, etc.,

Newcastle-upon-Tyne, Aug. 30th. G. GREY TURNER.

ETIOLOGY OF PUERPERAL SEPSIS.

SIR,—Dr. Armstrong and Mr. Burt-White (August 23rd, p. 305) attach little importance to the presence of anaerobic streptococci in the blood stream of seventeen patients, as reported by me in the *Journal* of July 26th (p. 134) because, as they suggest, the patients were a specially selected group of cases with thrombo-phlebitis, and not examples of ordinary puerperal fever. Further reference to my paper will reveal that the cases were not in any way selected. I included in my survey every case of puerperal fever investigated by blood culture during a period of twenty months, and the survey embraced the *whole* of the septic infections occurring in the largest maternity hospital in London—namely, Queen Charlotte's. They will find also that there was definite evidence of thrombo-phlebitis in only one-third of the cases giving positive blood cultures of anaerobic streptococci. Even if we assume, as do Dr. Armstrong and Mr. Burt-White, that all the cases were characterized by septic thrombosis, does it follow that they are not to be regarded as cases of puerperal fever? I would ask, moreover: Is it undesirable to discuss the bacteriology of such cases for fear of adding "yet another group . . . to the terrifying array of pathogenic streptococci"? I find it difficult to understand that attitude.

The conclusion reached by Dr. Armstrong and Mr. Burt-White that the cases reported by me were infections by various endogenous streptococci and other organisms, occurring as a sequel to intrauterine manipulation and trauma, is precisely the conclusion drawn by me and tentatively suggested in my paper. We differ, however, in our estimates of the importance of these infections. Dr. Armstrong and Mr. Burt-White, apparently influenced by the fact that the anaerobic streptococci they had met with were of low pathogenicity for laboratory animals, infer that these microbes can do little harm to human beings. Since I have seen seven women die from these infections, and as many more in grave danger, during the past two years, I am inclined to attach considerable importance to them. During the two months that have elapsed since my paper was sent in anaerobic streptococci have been isolated from the blood of three more patients, two of whom are in very grave danger at the time of writing, while the third has recovered from her infection, but become insane.

In conclusion, may I reaffirm my belief that until we have more precise data of the kind reported recently by Professor Hedley Wright and Mrs. Taylor (*Journal of Obstetrics and Gynaecology of the British Empire*, Summer Number, 1930, p. 213) and in my own paper, most of our discussions about the etiology of puerperal fever are but

waste of time. We are only now beginning to get these data. The new isolation block attached to Queen Charlotte's Hospital, which was opened on September 1st at Hammersmith, for the reception of any patients in or around London suffering from puerperal fever, will enable us to study the problem much more satisfactorily than has been possible heretofore.—I am, etc.,

London, W.9, Aug. 27th. LEONARD COLEBROOK.

"THORACIC STOMACHS."

SIR,—Mr. A. Brown Kelly, by his letter on thoracic stomachs (August 30th, p. 336), gives me an opportunity, which I welcome, of further ventilating this subject. He charges me with confusing terminology by applying to the dilatations of the gullet, occurring with pharyngeal pouch and cardiospasm, the picturesque title "thoracic stomachs." He complains that the term has already been chosen by him for a congenital defect in which the stomach develops above the diaphragmatic level. With his demand for a pure nomenclature I fully sympathize, but the ideal must not be allowed to dominate to the detriment of human needs. Is not Mr. Brown Kelly running the risk of allowing exactitude of terminology to override the more practical humanitarian aspect of medicine?

First, my title is a purely clinical one, and, by diagrams, I showed clearly that the conditions I described are adventitious pouches of the gullet, while the normal stomach is also present below the diaphragm. No medical reader could confuse them with congenital intrathoracic development of the stomach. Secondly, the congenital malformation is so very rare as to be of comparatively small concern to humanity. My use of the title serves to capture the imagination of the reader and refresh his memory on two very serious disorders which, taken together, form a most important, and not infrequent, group of alimentary troubles. I repeat that these dire disorders are out of sight and, therefore, apt to be out of mind, as witness the frequency with which the victims give long histories of ineffectual treatment. Thirdly, my use of the title in connexion with but two conditions does not preclude its embracing within its scope others—namely, diaphragmatic hernia of the normal stomach or developmental malposition of the stomach in the thorax. Indeed, I hinted at this by the reference to diaphragmatic hernia in the early part of my article.

Mine is a clinical title, and, since the greater includes the lesser, the clinician will not wish to confine its name to any one type of thoracic alimentary pouch, but will prefer to make it a generic term for the whole group of which pharyngeal pouch and cardiospasm form subdivisions of paramount importance by reason of their greater frequency and notable amenability to surgical relief.—I am, etc.,

Clifton, Bristol, Aug. 31st. A. WILFRID ADAMS.

MASSIVE COLLAPSE OF THE LUNG.

SIR,—A letter in your issue of August 30th (p. 334) by my friend Dr. P. Watson-Williams has drawn my attention to the above subject. The name of Dr. Watson-Williams is always to me a sufficient guarantee that there is something worth reading, otherwise the subject would have passed unnoticed. I shall leave him to deal with the deflated fancies of Dr. Woodburn Morison and Dr. Pasteur, but as some of his own ideas require a little inflation I venture to quote the following paragraphs from my Bradshaw Lecture in 1907.[1]

"We have seen how the lung is kept expanded by the negative tension within the pleura, and the greater and more active the inspiration the greater the negative pressure, but not unfrequently, especially in many wasting diseases where the demand for oxygen is not great, this negative pressure may fall to a very low ebb or may disappear, so that partial atelectasis of one or both lungs, or almost complete atelectasis of one lung, is not at all uncommon. This is especially apt to occur in young flat-chested individuals with pliant chest walls. Perhaps I have seen a greater number of these cases than has fallen to the lot of most men, for the simple reason that for many years I have been on the look-out for them. These cases are frequently overlooked because there is usually a negation of subjective chest symptoms, and so the lung is often allowed to remain so long collapsed that it never completely expands, and afterwards the deficient expansion of one side of the chest is supposed to be the result of some old pleural effusion of which the patient has no recollection. When these cases are discovered in the early stages they are usually mistaken for pleural effusion—an error which is apt to remain uncorrected if an exploring needle be not inserted into the chest. I show you the skiagraphs of a couple of cases which were tapped in several places with a negative result, and afterwards such diagnosis as sarcoma of the lung, unresolved pneumonia, etc., arrived at. My opinion that the conditions were simply due to atelectasis which could be removed by respiratory gymnastics was at first received with credulity, but the subsequent improvement in the cases and the nonfulfilment of the grave prognostications proved the correctness of my views. I have seen this condition occur in typhoid fever, infective endocarditis, pyaemia, etc. In one severe case of typhoid fever an energetic consultant came to the conclusion that a mistake had been committed, and that he had to deal with a case of empyema, but he had to acknowledge his own mistake when he found the pleura quite empty. I had subsequently the opportunity of explaining the correct nature of the condition, which in this instance was cured by making the patient lie on the other side.

"With care atelectasis is easily differentiated from pleural effusion, even when the dull percussion is absolute and the respiratory and vocal phenomena absent. In atelectasis of one lung the affected side is smaller than the other, the ribs are closer together and more sloping, the costal angle more acute, the diaphragm raised, the dull percussion barely reaches the middle line in front, while the sound lung passes beyond the mesial line, the heart is either not displaced or slightly pushed over by the sound lung. Forcible rubbing of the affected side, acting through the lung reflex of Albert Abrams, causes some expansion of the lung and clears up the percussion note. This is also accomplished by forcible expiration, or better by Valsalva's method. Everyone who has attended a case of parturition knows how a vigorous child expands its lungs, and in the treatment of atelectasis in the adult you cannot do better than imitate Nature, minus the howl."

—I am, etc.,

Hindhead, Aug. 30th. JAMES BARR.

[1] *British Medical Journal*, November 9th, 1907, p. 1292.

ANTIMALARIA MEASURES.

SIR,—Colonel Gill's letter in your issue of August 16th furnishes an explanation of the extraordinary statements he made (April 12th) about those of the "old school," and myself in particular, being "completely satisfied with the state of scientific knowledge attained some thirty years ago"; of our being uninterested in research; and of "unsubstantiated claims" made by the "old school." Colonel King, Dr. Tertius Clarke, Dr. Scharff, Mr. Senior White, and others have so fully shown the absurdity and inaccuracy of Colonel Gill's statements that I need add nothing. In fact, in my letter from Rhodesia published on July 5th, I made no attempt to prove to Colonel Gill that white was not black and that two and two made four. It would have been a waste of time, in his then state of mind; and unnecessary for those who know the work, scientific and practical, done in Malaya and elsewhere by members of the "old school."

But I could not help wondering how Colonel Gill came to create for himself these delusions. Now we have the explanation. In his letter (published August 16th) he tells us that when I visited his laboratory in Lahore in 1924 I "spoke slightingly of the value of laboratory studies in malaria, and displayed little interest in a specially arranged exposition of the technique employed in the study of the epidemiology of malaria." So there you have the paws, nose, and ears—the whole beast out of the bag. Colonel Gill has evidently been brooding over this imaginary slight, with disastrous results.

Having diagnosed the case, now let me treat the patient. It will comfort Colonel Gill to know that I believe there is "no single method of malaria control applicable to all conditions and all countries"; (vide Resolution 2, moved by me at the Congress of the Far Eastern Association of Tropical Medicine, Calcutta, 1927). Nor am I looking to the future to give us one single method. It will also comfort Colonel Gill to know that were there in force antimalaria measures giving 100 per cent. success in every malarial area in the world, I would still urge research, believing that fuller knowledge will lead to a lowering of

the cost of the control work. Now for a tonic. You can't "search out and study the secrets of Nature by way of experiment" in a laboratory alone, as, in substance, I told Colonel Gill in 1924, and so upset him. We require far more scientific work in the field than we have had in the past to control the results of work in the laboratory—for example, the misleading laboratory findings in regard to anopheles carriers. We need the scientist who can experiment in miles as well as in millimetres. And if Colonel Gill doesn't believe me, perhaps he will ponder over the words of the distinguished scientist which I quoted in my original letter of February 8th: "There is a certain type of man who is badly wanted at the moment. That is the scientific man who can administer; the administrative man who knows science. . . . We have men who can explore in the laboratory, but we have not enough men who can take what is discovered into the world. . . . We want people who are not merely scientists, we want people willing to take responsibility." Finally, to complete the cure I recommend a change of air and travel. Let Colonel Gill visit the work done by Mr. Senior White and Dr. G. C. Ramsay in India, and then visit Malaya, to hear and see the practical and scientific work done by Hoops, Scharff, Wellington, Macaskill, Barrowman, Hunter, Dawson, Scott, Daniels, Leicester, Stanton, Strickland, Hacker, Lamborn, Williamson, Gater, and others.

Reverting to the original subject, antimalaria measures in Africa, I have just returned from a tour on the Congo-Rhodesian border, the Low Velt, and Zululand. On the Selection Trust Mines in Rhodesia, the antimalaria work commenced by Sir William Simpson, Dr. Dalzell, and Mr. Harrison nearly a year ago is rapidly nearing completion, and promises to give the results that the "old school" would be much surprised if they did not get. Much interesting scientific work is being done in the field, and in the laboratory, which (Colonel Gill *nota bene*) *I myself* sent out to the mines. I also saw great opportunities for work on Malayan methods throughout my tour; and I have no doubt the future will show their adoption on a considerable scale in Africa. Less than ever, after my tour in Africa, am I inclined to sit down and allow the mosquito, uncontrolled, to work its will on man, and leave him to acquire after years of sickness that very imperfect thing—immunity to malaria.—I am, etc.,

MALCOLM WATSON,
Principal, Malaria Department, Ross Institute.

Putney Heath, S.W.15, Sep. 4th

THE LISTER WARD.

SIR,—In a footnote to the extremely interesting paper by Lord Moynihan recently read at Winnipeg[1] there were some remarks as to the misconduct of the managers of the Glasgow Royal Infirmary in pulling down the Lister Ward. With that attitude of mind I am entirely in sympathy. There never has been in the world's history an act of greater vandalism, but I think the reference to that might well have made mention of the fact that the managers of the Royal Infirmary were by no means unanimous. I happened to be at that time on the board of the Royal Infirmary, I think as president of the Royal Faculty of Physicians and Surgeons, and I moved an amendment to the effect that the matter should be delayed for further consideration. That amendment was duly seconded, and on a vote the amendment was supported by eight directors. The original motion to destroy the building was moved by the chairman of the hospital. I am not sure who seconded the motion, but it certainly was supported by Sir Donald Macalister, principal of the University, and by the honorary treasurer of the infirmary. Sixteen directors approved of the destruction; as already mentioned, eight disapproved, and I think it would only have been fair to the eight had the footnote mentioned the fact that a strenuous effort was made to save what was the most valuable building in the medical world. I hope in future that persons who write on this deplorable incident will take care to record that one-third of the directors who attended that meeting did not approve of the action of the majority.—I am, etc.,

A. FREELAND FERGUS.

Rothesay, Sept. 1st.

[1] *Canadian Supplement to the British Medical Journal*, August 30th, 1930, p. 10.

THE CUSTOMS AND BELIEFS OF MANKIND.

SIR,—I well remember one of my seniors, some five-and-twenty years ago, expressing his regret that I had no hobby, apart from my work. Being too shy to contradict my respected friend, I did not confess; but as a matter of fact I was, even at that remote time, a secret tippler of at least two varieties of potent spirit, one of them being folk-lore, or the study of the customs and beliefs of mankind. So you may easily understand with what pleasure I have seen this hobby recently receive the commendation of the *British Medical Journal*. It is, indeed, an appropriate pastime for the medical man. But there is one aspect which, curiously enough, has escaped the notice of your contributors, although this side of the subject is one which renders it of quite peculiar interest to the practising doctor, wherever his lot may be cast, at home or abroad, and that is its close and abiding relationship with popular medicine, and through it with the history of medicine itself.

In a brief communication like this it is, of course, impossible to enter even superficially into this fascinating subject, but I can most cordially support you in your commendation of the study of folk-beliefs, not only for its own sake, but also because it furnishes its votaries with a key to the comprehension of how the uninstructed mind views the human body, its functions and their disturbances.—I am, etc.,

DAN MCKENZIE.

London, W.1, Aug. 30th.

PERSONNEL OF A RADIUM CLINIC.

SIR,—Mr. Duncan Fitzwilliams concludes a most instructive and illuminating article (August 30th, p. 309) by a reference to what he regards as the necessary personnel at a radium clinic. His team is as follows: surgeons, laboratory workers (whatever these may be), biologists, and physicists. Being himself a surgeon it is possibly not unreasonable that he should put surgeons first. But though he refers to Paris and to Stockholm as places where team work has brought the treatment of cancer by means of radium to a high state of efficiency, he omits absolutely (as is all too common in this country) to mention the radiologist; yet one thinks of Stockholm in connexion with Professor G. Forssell, and of Paris in a similar relationship with Professor Regaud. To these two men the whole of the building up of the great work in these countries is due. Are we so much better than they? Possibly Mr. Fitzwilliams is including the radiologist under the term "laboratory worker," but he also omits to mention the physician and the pathologist, both of whom, surely, are essential in a well-organized radium clinic.—I am, etc.,

STANLEY MELVILLE.

London, W.1, Sept. 1st.

TECHNIQUE OF RADIUM THERAPY.

SIR,—Mr. D. C. L. Fitzwilliams in his lecture on "The technique of radium therapy to-day," which was published in the *Journal* of August 30th, states that beta rays are disadvantageous for medicinal purposes, and must be screened off by platinum, lead, or other impermeable metals, since they destroy normal as well as abnormal tissues. This is not in accordance with my experience, for I have found the application of a "full-strength" unscreened flat metal plaque of the greatest value in the treatment of rodent ulcer and other superficial conditions, having apparently a selective action on basal cell carcinoma.

Further, he asserts that the use of radon (radium emanation) is limited to centres where a radon plant is available, otherwise exact dosage is difficult or impossible to calculate, since it is not always known when it was prepared and how much has been dissipated. Surely there should be no difficulty in ascertaining when it was prepared, and its initial strength; its value at any period after its preparation can easily be computed by reference to a table. From the point of view of a State service, for economical reasons, the employment of radon has much to commend it, but, on theoretical grounds at any rate, it is inferior to the use of radium salt, since the greater part of its strength is exerted during the earlier part of its application, whereas radium exerts a uniform action during the whole period of its application. As Mr. Fitzwilliams rightly points out,

the administration of small doses over long periods is superior to large doses over short periods, which argues a superiority in the use of radium as compared with that of radon, and this, I think, can be proved in practice.—I am, etc.,

Newport, Sept. 3rd. W. HOWITT HASTINGS.

OCCIPITO-POSTERIOR POSITIONS.

SIR,—Dr. Kathleen Vaughan, in the *Journal* of July 19th (p. 121), states that occipito-posterior positions are unknown among races which habitually squat for urination and defaecation. For four years I was in charge of Maseno Hospital in the Kavirondo Reserve in Kenya, and we repeatedly saw cases with this complication. These people, the "Jaluo," not only squat for urination and defaecation, but also for the greater part of parturition. At present statistics are not available in Africa, but it would be interesting to know what occurs in India, where, I believe, this position is commonly used.—I am, etc.,

D. STRANGWAYS DIXON
Lingfield, Sept. 3rd. (of Limuru, Kenya Colony).

SIR,—In your issue of July 19th, under the above heading, I find a rather surprising observation made by Dr. Kathleen Vaughan that "it may be of interest that occipito-posterior positions seem to be unknown among races that habitually squat for urination and defaecation." Perhaps it is not generally known in Europe that almost all races in India, as a rule, squat for urination and defaecation, and obstetricians in India could cite cases after cases of occipito-posterior positions in their experience. From my own personal experience of several hundreds of deliveries I can safely assert that no fewer than 8 to 10 per cent. of cases are those of occipito-posterior positions.—I am, etc.,

F. R. PARAKH, M.D., M.R.C.S., M.R.C.P.I.,
Consulting Obstetric Surgeon, Parsee
Bombay, Aug. 10th. General Hospital.

NASAL SINUSITIS AND GENERAL MEDICINE.

SIR,—Owing to a short absence from London the letter from Mr. T. Harrison Butler (August 23rd, p. 305) has only just come to my notice. He has taken the term "all my eye" as though it were applied to the observation that focal sepsis may be the cause of ocular inflammation. Actually it was quoted in connexion with the term "abdominal eye," as the title of a poem which many years ago ridiculed a claim to diagnose every ailment by the ophthalmoscope. Mr. Butler himself says that any focal sepsis may cause optic neuritis and other ocular inflammations, thus exposing by his own words the fallacy of the term "abdominal eye," which implies some peculiar form of optic neuritis as a sequel to abdominal infections, particularly those of the gall-bladder. The mild flippancy, which Mr. Butler resents, represents the correct attitude towards so crude an absurdity.

In the book mentioned it is suggested that errors of refraction may be caused by focal sepsis. Mr. Butler says that of course the writer meant, not the optical abnormality, but the symptoms resulting from such errors, which, apart from sepsis, would have caused no trouble. This distinction is the very point criticized, and it might have been expected that an ophthalmologist would be the last to defend a lack of precision. It is a pity that Mr. Butler should neglect the main purpose and theme of the review, which was far from unsympathetic.—I am, etc.,

August 29th. THE REVIEWER.

THE PERFORMANCE OF NECROPSIES BY GENERAL PRACTITIONERS.

SIR,—I was pleased to see the letter from "Rusticus" in the *Journal* of August 9th, and still more so to see it followed by others. I have been impressed for years by the absurdity of the fact that we, unpractised, with no skilled assistance, and with makeshift appliances on unsuitable premises, are expected to undertake the sometimes difficult task of finding out the cause of death. The ideal remedy would be the provision of skilled district pathologists with all proper aids. I suppose the financial obstacle is insuperable. At any rate, no adequate person can be expected to undertake a responsible and sufficiently complete examination of a body, in existing circumstances, for a fee of a guinea and a half, unless he is under an obligation to do it.—I am, etc.,

Colwyn Bay, Aug. 25th. S. L. B. WILKS, M.D.

SIR,—I do not quite agree with the opinions expressed by "Rusticus," "A Country Doctor," and "Country G.P." in the *Journals* of August 9th and 23rd, about the performance of necropsies by general practitioners. It is regrettably true that general practitioners have very few opportunities of conducting necropsies; but much useful information and knowledge may be gained by taking advantage of such opportunities when they do arise.

In my few years of experience I have had to perform three post-mortem examinations at the direction of the coroner. In the first case (a woman, aged 50) several small aneurysms were found on the circle of Willis at the base of the brain, and the largest of these was ruptured, causing an extensive subdural haemorrhage. This accounted for the symptoms of meningeal irritation which preceded death. The second case was that of a man who was killed by lightning. No pathological lesion was found to account for death. In the third case (a man, aged 73) there was a haemorrhage into the pericardial cavity, due to a rupture of the anterior wall of the first part of the aorta, just above the aortic valves. This portion of the aorta was dilated, and the anterior wall was abnormally thin. No other gross lesion was found.

These three cases were very interesting and instructive. I should be sorry if general practitioners were denied the privilege of performing necropsies, even though they may not have an expert knowledge of pathology and forensic medicine. In cases of difficulty a specialist's opinion can always be obtained. I deprecate the performance of necropsies in private houses, and consider that a mortuary should be available in every district.—I am, etc.,

Bristol, Aug. 30th. RAYMOND T. BINNS, M.B., B.S.

SIR,—In 1894 I republished in the form of a pamphlet—"The State and the Doctor"—two papers originally contributed to the *Medical Magazine*. I think the following extract sums up the position to which attention was called by "Rusticus":

"Were the State to employ medical men in the way I propose, room might be made for certain appointments which I have long thought might be made with great advantage; I refer to a class of officers, one for each county, who would be medical jurisconsults. That is, men who have made a special study of jurisprudence and were practised in the art of giving evidence, and were also good practical pathologists. It is often almost painful to read the evidence given by medical men at inquests where a sharp cross-examination takes place. The medical man has usually come to a right decision in his own mind upon the case, but when the 'possibilities' and 'are you prepared to says' come in the lawyer makes such hay of him. . . . One feels that medical men are often made to state what is more or less than their opinion by their inability to withstand cross-examination. Moreover, this sort of case occurs: a man is found dead or dying by the police; any medical man living in the vicinity is summoned; on his evidence the coroner is communicated with, a post-mortem ordered and made; by-and-by unsuspected criminal evidence is imported into the case, and perhaps the body has to be exhumed to find that the first examination has practically destroyed the tissues or organs so that no efficient observation can be made. Much of this would be avoided by letting the first medical man testify to fact only, and taking the evidence of the county jurisconsult on the scientific possibilities of the case."

—I am, etc.,

Bournemouth, Aug. 24th. GEORGE MAHOMED.

SIR,—After thirty years' experience as a rural practitioner may I venture to agree with "Rusticus." A seven miles journey on a cold winter night; a young local constable who retires after the first incision; a small room with an old four-poster bed and a candle; one pail of water

and a dirty towel: result, next day, a verdict of "fatty heart." Add to these details a fee which a railway porter would scoff at, out of which must be provided a tip to the aforesaid constable, and another to the local charwoman to clean up the mess. The whole thing is a farce. In these days of telephones and motors surely a specialist could be appointed. As "a Government official" he would, of course, get an adequate fee, out of which he could tip the poor old general practitioner to give him essential particulars.—I am, etc.,

"G. P."

August 24th.

SIR,—Since my last communication I have come to the conclusion that the unconscious villain of this grisly farce is the non-medical coroner. He, with all the might of the law behind him, commands the family doctor of the dead person to perform the post-mortem examination. This unfortunate gentleman now finds himself in a sorry fix. The law will not allow him to take the only honest course and refuse outright; for the law, like the coroner, assumes every doctor to be an expert pathologist. He cannot well confess his incompetence to the coroner and ask to be excused. He would be misunderstood by coroner, patients, and public alike, and a less modest and perhaps less scrupulous colleague would profit. So he does what we all do. He keeps a still tongue, a stiff upper lip, and breathes an inward prayer that some quite unmistakable cause of death will allow him to sleep that night with an untroubled conscience.

For the medical coroner who chooses his post-mortem performers at random it is difficult to find any excuse, for he ought to know better. At the best he is spending public money with but slight hope of an adequate return, and at the worst he is a consenting party in a not very creditable piece of medico-legal humbug. I have been informed of one coroner in a large city who employs only skilled pathologists. I hope there are others, but I do not know of them.

The matter is serious. The most innocent-looking case upon which an unpractised doctor has to perform a necropsy may well have its end in the criminal court, with the life of a fellow creature in the balance. How often in the last twenty years have we heard of exhumations for second post-mortem examinations, and how often has the unfortunate doctor who performed the first been brought into undeserved contempt? The number, I believe, is not inconsiderable. It behoves us as a profession, therefore, to see to it that a high degree of skill is brought to all post-mortem examinations from the beginning.

The remedy is so simple. It amounts to this. The delusion under which lay coroners apparently labour, that every doctor is an expert pathologist, and every cowshed and back scullery is a suitable post-mortem room, must be finally dispelled. Doubtless we shall fall sadly in the estimation of these gentlemen, but it cannot be helped. As it is true, we had better confess it rather than wait till we are found out. Once they have recovered from the shock of this intelligence the cure follows naturally. Every cottage hospital has a mortuary, and a post-mortem room is a simple and logical addition. Motor hearses are common, and would-be pathologists will not be lacking.

We general practitioners have had our domains invaded by the myrmidons of many branches of official medicine. To some our welcome has been chilly, even frosty. Should the "county autopsy officer" ever come into being I, for one, shall take him to my bosom as a brother.—I am, etc.,

RUSTICUS.

August 23rd.

IDIOPATHIC HAEMORRHAGE IN THE NEWBORN.

SIR,—In reply to Dr. Montague Dixon's query in your issue of August 30th (p. 336), he will find that the good effect of the injection of parental whole blood is described in an article by Helmholz in the *American Journal of Diseases of Children*, 1915, x, p. 194. Subsequently J. E. Welch showed that an equally good effect can be procured by the use of normal horse serum.—I am, etc.,

HUGH THURSFIELD.

London, W.1, Aug. 31st.

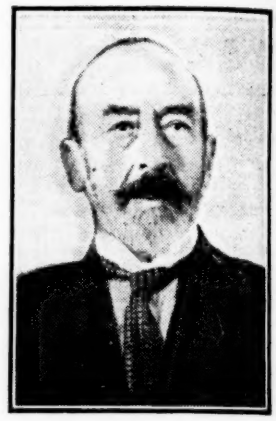
Obituary.

CHARLES BUTTAR, M.A., M.D.,

Chairman, Executive Subcommittee, Central Medical War Committee.

BY the death of Dr. Charles Buttar on August 31st, after an operation, the medical profession has lost a man of great ability and public spirit, who applied a critical and independent mind to many and diverse professional problems.

Charles Buttar was born in London on June 6th, 1867, and had a thorough grounding in the classics at Westminster School. Entering Pembroke College, Cambridge, with a scholarship, he took a good place in the Classical Tripos, and then began to read for medicine, obtaining honours also in the Natural Sciences Tripos of 1889, and becoming M.A. three years later. At St. Bartholomew's Hospital he did well, and after graduating M.B., Ch.B. in 1892 and taking the Conjoint diplomas he served in turn as house-surgeon and assistant anaesthetist at Barts, house-surgeon to the Metropolitan Hospital, and clinical assistant at the Western Ophthalmic Hospital. He obtained the D.P.H. in 1895, and proceeded to the M.D. degree in the following year. With this all-round equipment Buttar became a general practitioner, and worked for many years in Kensington and Bayswater, winning the confidence of his patients and the respect of his colleagues. Very quick at absorbing professional knowledge and ready in applying it, he was also business-like in organizing the day's work, so that amid the claims of a town practice he found opportunity to go about in other circles and exercise his acute brain in many directions—political, philosophical, administrative, and scientific. He was one of the earliest medical men to drive a car, and was closely associated with the formation of the Motor Union, which, in 1910, amalgamated with the Automobile Association. Before the amalgamation he had served on the Motor Union's committee of medical motorists. In 1924 he was elected to the committee of the Automobile Association. He took a practical interest in all matters affecting the safety and comfort of motorists, and his wide experience as a driver was invaluable in the provision of warning signs, road improvements, and the development of A.A. services to touring members.



Though he had long been a member of the British Medical Association, Buttar did not come to the front in its affairs until the National Insurance crisis, when he joined forces with the opponents of the bill because of its threat to the freedom of the individual doctor, whose interests he always had at heart. He was elected to the Council on four occasions between 1912 and 1923, and served on various standing committees, including the Journal, Finance, Central Ethical, Hospitals, and Naval and Military Committees; he also took an active part in the work of the Ministry of Health Committee, the Post-Graduate Courses Committee, the Non-Panel Committee, and a special committee appointed to consider expansion of military medical services in the event of a national emergency. Soon after the armistice he was one of the moving spirits in a small committee formed to advise the Council on the rearrangement of business at the Association's headquarters; in fact, whenever there seemed to be need for fresh ideas and a critical outlook Buttar was usually put upon the body appointed to make inquiries. He attended all the Annual Meetings in recent years, and was vice-president of the Section of Medical Sociology at Newcastle in 1921. Perhaps his most successful work for the medical profession was done during the war. He saw

at once the need for organizing the civilian profession so that recruitment should proceed on an orderly plan and the medical man-power of the country be used to the best advantage. To the difficult and thankless task of the Central Medical War Committee he gave of his best, and it was in no small measure due to his efforts as chairman of the Executive Subcommittee that the profession was allowed to retain the management of affairs in its own hands.

Before leaving the record of Buttar's work in and for the Association we wish to acknowledge his services to the *British Medical Journal*, both as contributor of many unsigned articles, reviews, and reports, and as a colleague, well acquainted with the routine business of this office, who could be relied on for prompt unobtrusive help in an emergency. He had read widely, wrote straightforward English without frills, and was willing to take endless trouble over any editorial task that came his way. It disappointed him greatly to have to decline a responsible duty for us this summer, but the severe illness for which he underwent an operation two years ago had left him in precarious health, and he would not risk "letting the *Journal* down."

It was characteristic of Buttar that, at the age of 57, being then in the full tide of bodily and mental vigour, he decided to retire from active practice, and to seek no further office in the Association after his year as president of the Metropolitan Counties Branch. He said he wished to make way for younger men before others thought the time for that had come. He retained, however, his membership of the committee of the Medical Sickness and Accident Society; served on the council of Epsom College and of the Fellowship of Medicine, and kept up his close association with the Harveian Society, of which he had been president and treasurer; gave time and thought to the People's League of Health; interested himself in several aspects of the tuberculosis problem; and often took duty for a general practitioner friend in the country.

Charles Buttar's ingrained horror of sentimentality, his caustic but suavely worded comments on the conduct of affairs, and his habit of laughing at himself and others, gave him the name of cynic. This was far from the truth. He was a mixture of idealist and realist, holding firmly to certain basic principles which he agreed to call prejudices, and tempering cool judgement and austerity of intellect with genuine kindliness. In conversation and in public business he often spoke as a sceptic, but when a friend or a good cause wanted help he gave it with both hands.

The funeral service on September 3rd, at Woking Crematorium, was attended by Dr. Courtenay Lord, Assistant Medical Secretary, on behalf of the Council of the British Medical Association, and by the Editor of the *Journal*.

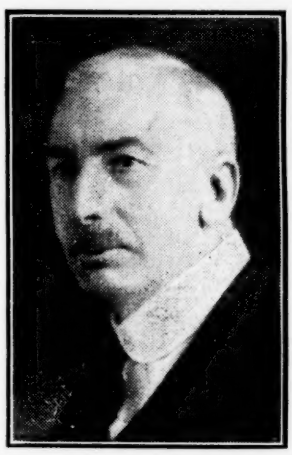
Mr. E. B. TURNER, Past-Chairman of the Representative Body, and Vice-Chairman of the Central Medical War Committee, writes:

By the death of Charles Buttar the Association, the profession, and the country have lost an exceedingly good friend. For the last twenty years of his life the honour and interests of the medical profession and of the individual practitioner were very near to his heart. When the Insurance Bill was brought in he foresaw the effect that the establishment of an immense system of contract practice, involving millions of the industrial classes, would have on the status and position of the private family practitioner, and though thoroughly in favour of any system of insurance against sickness, he was much concerned with what would most certainly be the effects of such a far-reaching change in practice. He was one of those who did their utmost to fight the bill and to rally the profession as a whole to do whatsoever might in it lie to conserve the position of the family doctor acting as a private practitioner. He was one of the foremost in organizing those meetings of the profession which unanimously condemned the bill and in carrying on the fight in the London district after the rest of the country had more or less accepted the inevitable. Most of his predictions have been verified, and he foresaw very accurately whither the outcome of such fundamental change in the relation between doctor and patient might lead. He always played the game, whether to his own advantage or not. When the great war broke out he was one of the foremost in attempting to organize the staffing of the new armies with civil practitioners without unduly disturbing more practices than was absolutely necessary. He was one of those who, before the Conscription Act came in, went about all over the country addressing meetings of doctors, urging them to enrol for service in the new armies, and for those who could not undertake active service to look after the practices of those who went. On the establishment of the Central Medical War Committee—one of the Association's best achievements—Buttar threw himself wholeheartedly into its work, and as chairman of one subcommittee almost gave up his own private work and practically lived at the office of the Association to help carry on and organize matters. When medical service became compulsory he did everything possible to ensure that the case of every doctor called up who appealed should be fairly and impartially considered by the appeal subcommittees, regardless of "contractual obligations." He was very active in pointing out the overlapping in the work of the medical services at the front, and was one of the commission sent out by the War Office to investigate and report. The report of that commission, which from start to finish bore the marks of his Roman hand, was so extremely confidential that only two copies were issued—one each to the chairman and vice-chairman of the committee. But many of the suggestions were carried out and bore good fruit. Of apparently cynical aspect he had one of the kindest hearts imaginable, and was always ready to go out of his way to help or to do a good deed to assist anyone. When hard, unpaid, and sometimes distasteful work for the profession, or the country, was on hand, he was always to the fore: when official recognition and rewards were about he was not.

HERBERT WILLIAM CARSON, F.R.C.S.,

Senior Surgeon, Prince of Wales's General Hospital.

As recorded in our last issue, Mr. Herbert Carson died on August 31st, at the age of 59, following an attack of post-operative pneumonia. He received his medical education at St. Bartholomew's Hospital, and qualified M.R.C.S.Eng. and L.R.C.P.Lond. in 1895, proceeding to the Fellowship of the Royal College of Surgeons of England in 1899. Early in his professional career he was elected to the surgical staff of the Prince of Wales's General Hospital at Tottenham, where he was instrumental in starting the North-East London Post-Graduate College, and eventually became senior surgeon. He also held appointments as consulting surgeon to the Hertford County Hospital, the Welwyn Cottage Hospital, and the Linen and Woollen Drapers' Institution, and as lecturer on abdominal surgery to the North-East London Post-Graduate College. During the war he held a commission as honorary captain in the R.A.M.C., being surgeon to King George Hospital.



Herbert Carson took an active part in the social life of the profession, and was a past-president of the Medical Society of London and of the Hunterian Society; he was also chairman of the executive committee of the Fellowship of Medicine, with whose work he had for a number of years identified himself, and recently he had become a member of the provisional organization committee for the new Post-Graduate Hospital and Medical School at Hammersmith. To the British Medical Association he rendered valued service, serving on the Arrangements Committee, 1929–30; and but for his untimely illness and death he would have

proceeded to Canada to carry out the duties of his office as vice-president of the Section of Surgery at the recent Annual Meeting at Winnipeg. Carson had every reason to look forward eagerly to this meeting, for in 1925 he had had a most cordial reception in Canada, when, on behalf of the British Medical Association, he attended the annual meeting of the Canadian Medical Association at Regina as a very welcome guest of the latter Association. On that occasion he delivered addresses on gastric and duodenal ulcer and on cancer of the colon, and came back with a sufficient knowledge of the needs of medical men in the Dominion to help him to organize post-graduate teaching in this country on their behalf.

Carson was not only admirable as a teacher on surgical subjects, but during his career he made a number of valuable contributions to surgical literature. Perhaps his chief work was *Modern Operative Surgery*, for which, as editor, he wrote a large number of sections, including practically the whole of those dealing with abdominal surgery; he was also author of *Asepsis and How to Secure It* and *Aids to Surgical Diagnosis*, and editor of the tenth edition of Pye's *Surgical Handicraft*. In addition to these works he made a number of contributions to the medical press, and read numerous papers before medical societies; included among these were "Clinical aspects of tuberculous mesenteric glands" (Medical Society's *Transactions*, vol. 41); "Post-operative treatment of cancer of the breast" (*British Medical Journal*, December 11th, 1926); "Indigestion from the surgeon's standpoint" (*British Medical Journal*, March 8th, 1930).

In the sad unexpected passing of Mr. Carson, the career of a brilliant surgeon has been brought to an untimely close. In addition to being a man of great energy, with a tremendous capacity for hard work as a surgeon, as a teacher, as a writer, and as a speaker, he was characterized by his very infectious enthusiasm for even the smallest things in his clinical work. He repeatedly emphasized the importance of the surgery of that most economic unit, the hand, and he was persistent and patient in the teaching of this subject. His surgery was very good: it was radical, quick, firmly yet gently performed, and the more difficult the work the more obvious became his interest, courage, and enthusiasm for it. It was surprising how a man of his seniority and accomplishments kept himself quite "au fait" with the latest surgical literature, and was still writing steadily. Among old students of the post-graduate college at Tottenham, many of whom are occupied in responsible posts in fields afar, his name will be kept green for many years. His sterling qualities as a surgeon and as a man, and his personal interest in the nursing staff of the hospital, endeared him to their hearts. Outside his profession, he had been a keen cricketer, a good tennis player, and played a first-class game of chess. His quiet charm of manner and kindly genial disposition endeared him to a very large circle of friends. Many of them gathered together at the memorial service at All Souls' Church on September 3rd, to pay tribute to him.

Dr. ARTHUR GILES writes:

Herbert W. Carson was a man of strong personality and of great and varied abilities. He was closely associated with the growth and development of the Prince of Wales's Hospital, Tottenham, which he served for about thirty-three years. He was one of the founders of the North-East London Clinical Society and of the North-East London Post-Graduate College. He was a keen and expert surgeon, and achieved a great reputation, especially in the North of London. Of later years his activities spread over a wider field, and he will be remembered as a successful president of the Medical Society of London, as one of the honorary librarians of the Royal Society of Medicine, and as Hunterian Orator on the subject of the history of the knowledge of peritonitis, which attracted much attention. A few years ago his reputation was greatly enhanced and extended by the publication of a new work on operative surgery which he edited, and to which he contributed valuable chapters on abdominal surgery. Mr. Carson was greatly interested in medical graduate study, and was one of a group of leaders of the medical profession who were in close touch with the Ministries of Health and of Education with the object of instituting an important post-graduate system in London. Outside his profession he was a keen sportsman; the claims of surgery stopped his cricketing career, his special bent for wicket-keeping being too risky for surgical hands; but he was also a good tennis player and golfer. Like his brother, H. A. H. Carson, the well-known cricket expert, he was also an excellent chess player, ranking as first class in his earlier days. His death at the comparatively early age of 59 is a serious loss to the medical profession, and a source of profound grief to his many friends.

[The photograph reproduced is by Elliott and Fry.]

J. E. MACILWAINE, M.D., B.Sc.,

Physician to the Royal Victoria Hospital, Belfast, and formerly Professor of Materia Medica and Therapeutics in Queen's University.

THE sudden death of Professor John Elder MacIlwaine, on August 13th, will long be felt as a loss, not merely by his colleagues of the Belfast Medical School, but by all his fellow workers in cardiology.

Professor MacIlwaine had a full and varied life. After his school days at the Royal Academical Institution, Belfast, he served an apprenticeship in his father's shipyard at Belfast, and then went to Glasgow University, where he obtained the degree of B.Sc. in naval architecture. Shortly after his return home he became interested in medicine and entered Queen's College, Belfast, as a medical student. His undergraduate career was a brilliant one, not only in the class-rooms, but in the playing fields as well; and in the nineties, when Irish Rugby football was at its zenith, he represented his country for three years, and was one of the best of an exceptionally fine pack.

The outbreak of the South African war found him a final-year student, and he at once joined the Irish Hospital as a dresser, and accompanied it to the Cape, where he gained a wide experience of typhoid and dysentery. On his return he graduated M.B., B.Ch., and B.A.O. with honours, and then proceeded to the Continent for further study. He visited Berlin and Paris and spent almost a year in Vienna. He finally settled in Belfast, and became connected with the Royal Victoria Hospital, a connexion which lasted for the rest of his life. He served in succession as house-physician, medical registrar, medical tutor, assistant physician, physician, and consultant physician in charge of the cardiographic department. During the whole term of his service his skill and knowledge, his teaching, and his advice were appreciated by colleagues and students alike.

MacIlwaine's bent, strengthened by his early training, was towards practical science, and when he commenced consultant work it was inevitable that his special interest should be in the application of the physical sciences to the diagnosis and cure of disease. He began by working at biochemistry, at a time when biochemistry was still in the nature of a mystery to the practising physician. When the electrocardiograph was introduced he realized at once its possibilities, devoted himself to recording and elucidating its findings, and finally abandoned all other branches of medicine in favour of cardiology. His success was complete. During the great war he joined the St. John's Hospital at Etaples, and took over with him his own cardiograph. The results that he obtained were so accurate and so useful that in a short time he became virtually the cardiac consultant for the army in France.

After the war he was appointed professor of materia medica and therapeutics in the room of Sir William Whitla at Queen's University, Belfast. With characteristic energy and initiative he set to work to reorganize the curriculum and the teaching of his subjects, and he succeeded in carrying the appointment of a properly qualified professor of practical pharmacy, and in gaining the recognition of this course as an integral part of the course of instruction in therapeutics. At the Annual Meeting of the British Medical Association in Belfast in 1909 he was joint honorary secretary of the Section of Medicine, and in 1924–25 he was president of the Ulster Branch.

For some years his health had been a subject of anxiety to his friends, and about two years ago he was faced with

the threat of blindness. He had always been myopic, and after some premonitory symptoms he lost completely the sight of one eye. In the hope of saving the other he first resigned his professorship, and then gave up his teaching work at hospital, but unfortunately all precaution was vain, and for some months before his death he was practically blind. He is mourned by his wife, who was for many years his constant companion and helpmate, and by many friends. No one ever met MacIlwaine without being cheered and stimulated by the encounter. Charmingly disputatious, kindly, reasonable, well equipped with knowledge and with the art to use it, he was an ideal companion. Who that knew him can forget his mellow voice—in his younger days he was a delightful singer—and his bright laugh? Peace be to his ashes.

R. J. J.

The death of Dr. W. R. HIGGINS of Louth, on August 22nd, has caused deep regret in Lincolnshire. William Robert Higgins, second son of the late Dr. T. J. Higgins, was born in 1878. He received his medical education at the University of Cambridge and the London Hospital, obtaining the diplomas M.R.C.S., L.R.C.P. in 1904, and graduating M.B., B.Ch.Camb. in the following year. He proceeded M.D. in 1911, and became a Fellow of the Royal College of Surgeons of Edinburgh in 1918. He commenced practice in Louth in association with his father in 1904, and six years later was appointed medical officer and public vaccinator for the Welton district. He was consulting surgeon to the Alford Hospital, and surgeon to the Louth and District Hospital and St. Margaret's Home. During the war he was attached at first to the 4th Northern General Hospital, Lincoln; he then served for a time in the *Mauretania*, functioning as a hospital ship, and was later with the army in France. On returning to civilian life he took an active part in assisting the organization of ex-service men, and was one of the founders of the Louth United Services Club, of which he was president at the time of his death. He became a member of the Louth Town Council in 1921 as the representative of the ex-service men, retiring in 1926. He was also a governor of the Louth Grammar School, where as a boy he had received his early education. His breezy personality, warm-hearted devotion to his patients, loyalty to his colleagues, and exceptional oratorical abilities made him a notable figure in Louth, both professionally and personally. He was a fearless and resourceful surgeon, and his valuable work at the Louth Hospital was highly appreciated.

Dr. JOHN THOMSON WILSON, formerly medical officer of health for the county of Lanark, died on August 25th. He was a native of Cambuslang, and graduated at Aberdeen University in 1891. He first assisted Professor Matthew Hay at that university and afterwards was assistant to the medical officer of health for Shropshire. Practically all his professional life, however, was spent in Lanarkshire, but he derived his training and scientific outlook from the University of Aberdeen, which sent forth about that time a group of men who subsequently became famous in public health. All these men showed that painstaking care in the application of science to health problems which characterized Wilson in the highest degree. He was the second county medical officer for Lanarkshire, taking up his duties there within five years of the passing of the Local Government (Scotland) Act, 1889, at a time when county health administration was chaotic, and he laboured there for more than thirty years so as to form in that important area an effective administration for improving the public health and raising the social standards of the people. In this he did most notable work, and only those who knew the conditions in Lanarkshire in the nineties are able to form a just opinion of the magnitude of the task which he faced. Water supply and sanitation in these villages and busy industrial towns were wanting or primitive to a degree. The rich mineral wealth of the county attracted immigrants from all parts of Great Britain and Ireland, giving rise in many areas to grave overcrowding and increasing the effects of bad sanitation. In dealing with these Dr. Wilson showed not only clear judgement, but unswerving determination to improve the conditions of the inhabitants. In these days of advancement and progress in public health matters it is pleasing to have to record of one of the most progressive of medical officers of health that with him environment and general health considerations had always the first place. He did not believe that *ad hoc* effort could ever correct faulty health conditions, but, nevertheless, all special departments in public health work had his enthusiastic support. The bacteriological laboratory, the chemical laboratory, and the hospital arrangements of Lanarkshire under his inspiration became foremost throughout Scotland, while the tuberculosis and venereal schemes and the child welfare arrangements of that county were all well thought out and models of their kind. Dr. Wilson was gifted not only with a sound scientific knowledge of disease and health conditions, but also with much business acumen and common sense, upon which he relied in dealing with his many committees and councils. He was something more than a mere medical man or medical officer of health—he was a practical man of the world who appreciated practical difficulties and envisaged problems as they appeared to councillors and public representatives. On that account he was singularly successful and happy in his relationship with his councils, who ever placed in him their confidence and respect. Dr. Wilson's influence in public health extended far beyond Lanarkshire. A generation of medical officers of health, working in England, Scotland, and the Colonies, owe to him their first inspiration in public health, and many of the advances made in the past thirty years elsewhere have been almost directly due to that quiet, self-contained, patient, and high-minded chief, whom all his assistants revered. His passing leaves a blank with many, but his example lives.

Dr. HUGH COLLIGAN DONALD, T.D., who died at Paisley on August 20th, aged 60, was the third son of the late Dr. J. T. Donald, a former Paisley medical officer. He was educated at Paisley Grammar School, Merchiston, and Glasgow, where he graduated M.B., C.M. in 1891. Six years later he obtained the diploma F.R.C.S.Ed., and was appointed surgeon to the Royal Alexandra Infirmary, Paisley, a position from which he retired only this year. He was also consulting surgeon to the Royal Victoria Eye Infirmary, a certifying medical officer for mental disease and lunacy, and specialist in venereal diseases to the Paisley and Greenock corporations. At the outbreak of the South African war he became a medical officer to the 3rd British Cavalry Brigade, and he received the Queen's medal with four clasps. In 1914 he acted as senior medical officer to the Argyll and Sutherland Brigade (Territorial), with the rank of major in the R.A.M.C., subsequently serving in other capacities and retiring with the rank of lieutenant-colonel. He was a member of the British Medical Association.

The Services.

NORTH PERSIAN FORCES MEMORIAL MEDAL.

THE War Office announces that Captain H. W. Mulligan, M.B., Indian Medical Service, has been awarded the North Persian Forces Memorial Medal for the year 1929 for his paper, "Studies on the reticulo-endothelial system, with special reference to malaria," published in the *Indian Journal of Medical Research*, vol. xvi, No. 4, April, 1929. This medal is awarded annually for the best paper on tropical medicine or hygiene published in any journal during the preceding twelve months by a medical officer, of under twelve years' service, of the Royal Navy, Royal Army Medical Corps, Royal Air Force, Indian Medical Service, or of the Colonial Medical Service, provided the Memorial Committee considers that any of the papers published has attained a standard of merit justifying an award.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

DR. H. W. FLOREY, of Gonville and Caius College, has been reappointed Huddersfield lecturer in special pathology.

The following elections are announced: G. L. Taylor, M.D., to the John Lucas Walker studentship for three years; A. Branch, M.D., to the Gwynaeth Pretty studentship for three years.

Medical News.

THE annual exhibition of the Royal Photographic Society of Great Britain opened on September 11th at 35, Russell Square, W.C.1, and will continue until October 11th. Among the exhibits are photomicrographs illustrating the structure of emulsions, studies of the effect of recoil in revolver shooting and of shotgun bursts due to obstruction, radiographs showing structure differentiation, and colour transparency views of Indian subjects.

AT the provincial meeting of the Society of Medical Officers of Health to be held at Lowestoft on September 19th and 20th the members will be entertained by the Mayor and Corporation of Lowestoft at luncheon at 12.30 on September 20th and not on September 19th as stated in our previous notice.

THE Committee for the Study of Medical Hydrology is arranging its programme for the coming winter. The object of the committee is to supply lecturers on the subjects of spa treatment and general medical hydrology for medical societies and for medical schools where these subjects are not already included in the curriculum. A list of the lecturers available will be forwarded on application to Dr. Geoffrey Holmes, 11, Ripon Road, Harrogate.

THE annual meeting of the International Society of Medical Hydrology will be held this year in Lisbon and the Portuguese spas, from October 15th to 23rd, in conjunction with the Congrès international d'Hydrologie. One medical discussion is being arranged by the society, on the treatment of digestive disorders by waters and baths. General meetings will also be held to consider a system for the international registration and classification of waters, the organization of health resorts for insured workers (social hydrology), and proposals for the protection of the names of the spas. Papers are read in English, French, or German, and translations supplied. The Portuguese spas to be visited include Coimbra, Curia, Oporto, Bussaco, and Vidago. The annual meeting will also include social events, a banquet in Lisbon, and reception by the President of the Republic. The meeting is open to non-members, at a fee of 10s. (and 5s. for a lady accompanying a participant). Expenses in Portugal are £10 3s. 6d., and the fare from London to Lisbon and back in ss. *Cap Arcona* from Boulogne on October 11th is £19 0s. 6d. Alternative travel overland can be arranged. A limited number of medical practitioners and students who are interested in hydrology are invited to take part in this meeting. Applications should be received at the office of the society, 55, Wellington Road, N.W.8, not later than September 15th.

A MEETING of the Royal Sanitary Institute will be held on Saturday, October 4th, in the Town Hall, Hereford. The subjects for discussion will be the place of women in local government, the preservation of the countryside, and the health authority and the milk supply. The chair will be taken at 10 a.m. by Dr. George F. Buchan.

THE German Society for Industrial Hygiene will hold a congress at Breslau from September 22nd to 24th; papers will be read on work and housing by Professor von Drigalski of Berlin and on hygiene in the office by Dr. Holstein of Frankfort-on-the-Oder and Dr. Kremer of Berlin.

THE recent meeting of the International Society of Microbiology in Paris was attended by more than 700 members. The three sections—general and medical microbiology; serology and immunity; and agricultural microbiology—had daily sessions at the Pasteur Institute. Professor Ledingham and Dr. Arkwright were the only English "rapporteurs," and dealt with variation amongst bacteria; Sir Almroth Wright demonstrated bacteriological technique. Numerous papers on the relation of lipoids to immunity, neurotrophic viruses, yellow fever, blood groups, undulant fever, influenza, scarlet fever and diphtheria, bartonellosis and syphilis, reviewed the present knowledge of these fields of study; the detailed papers will be published later. The exhibition of some excellent films of the developmental cycle of various parasitic worms and the splitting of bacilli attracted a large audience. Professor Bordet, the president, announced at the final meeting that the next congress would take place in Berlin in 1933. The banquet on the last evening was so popular that the restaurant originally chosen could not accommodate the diners. The speeches reflected the spirit of real international amity, which was an especially pleasing feature of the whole congress.

THE last annual report of the Board of Control states that on January 1st, 1930, the number of notified insane persons under care in England and Wales was 142,387, an increase of 1,307 during the preceding year, the average annual increase for the five years ending January 1st, 1930, being 2,167. The percentage distribution of the sexes—males 44.2, females 55.8—showed an increase of 0.3 in the proportion of males. Deaths numbered 9,739 (males 4,539, females 5,260). They were 1,030 more than in the preceding year. The number of certified mental defectives in institutions on January 1st, 1930, was 23,485. In addition, there were 2,212 defectives in institutions and homes who were not certified, making a total of 25,697.

KING'S College Hospital Medical School has now entered upon its centenary year, and an account of the work accomplished during the past 100 years will be given by Dr. Raymond Crawfurd on October 1st at the opening ceremony of the winter session, presided over by Dr. G. F. Still. The centenary dinner, under the chairmanship of Sir StClair Thomson, will be held on the evening of the same day at the Connaught Rooms. The medical school needs urgently the completion of its buildings, the erection of half of which was prevented by the outbreak of the war. It is proposed to mark the centenary by carrying out this work as soon as funds are available, and for this purpose money is being collected.

AT the recent Empire Conference of the British Red Cross Society a resolution was passed approving the principle of reading as part of curative medicine, and desiring to see it established in all hospitals in due course. In this connexion it is of interest to note that the subject of hospital libraries will be discussed at the Conference of the Library Association to be held this month in Cambridge. On Tuesday, September 23rd, at 2.15 p.m., there will be a short paper on the history and practice of this work as done in Great Britain; Miss Ostenfeld, organizer of the Hospital Library Service at Odeure, will speak on collaboration between public libraries and hospitals in Denmark; and Miss Perrie Jones, hospital librarian, Public Library, St. Paul's, Minnesota, on the psychological value to patients of hospital libraries. Representatives from institutions are invited to write for further details to the secretary, Library Association, 76, Bedford Square, W.C.1.

THE system of compulsory notification of acute rheumatism which was instituted in the Royal Borough of Kensington in October, 1927, for an experimental period of three years, will be continued for another period of three years, dating from October 1st, 1930. It has been decided that the expression "acute rheumatism" shall be interpreted to mean the following conditions, occurring separately or together in a child under the age of 16 years: (1) rheumatic pains or arthritis, if accompanied by a rise of temperature; (2) rheumatic chorea; (3) rheumatic carditis. Complete details are embodied in Statutory Rules and Orders, 1930, No. 659, published by His Majesty's Stationery Office, price 1d.

A MEMORIAL window to the late Dr. John K. Stewart was recently unveiled by his son in the Randalstown Presbyterian Church, County Antrim. Dr. Stewart died on April 15th, 1923, at the age of 29, as a result of wounds received on active service. An obituary notice appeared in the *Journal* of May 5th, 1923 (p. 792).

MEMBERSHIP of the Guild of St. Luke is open to all students and practitioners of medicine—both men and women—who are members of the Church of England, the clergy of which are eligible as clerical associates. The Guild was started in London by a few medical students over sixty years ago, and there are also now in London a Women's Ward and a Students' Branch, as well as a Midland Counties Ward and a Cambridge Ward. The Chapter of the Guild meets in each month of the academic year, and a festival service is held annually at St. Luke's Tide, either at St. Paul's or Westminster Abbey. This year the service will be at St. Paul's. Particulars of the objects and activities of the Guild and forms of application for membership can be obtained from the secretary of the Guild of St. Luke, King's College, Strand, W.C.2.

ACCORDING to the *Journal of the American Medical Association*, "Typhoid Mary," the carrier who infected at least twenty-eight members of seven different families in which she was employed as cook, is still alive and is quarantined in a New York hospital, where she earns a small salary by cleaning glassware. Her stools are constantly used by the New York Department of Health as a control for bacteriological media.

THE August issue of the *China Medical Journal*, which periodical is published monthly by the China Medical Association, takes the form of a special leprosy number. Original articles and reports on the progress being made by leprosy institutions depict the outlook as regards the treatment of this disease in China at the present time, and Dr. J. L. Maxwell summarizes the salient points in this respect. The clinical side of the problem is discussed by Dr. Ernest Muir, Dr. A. J. Watson, and others.

THE issue of the *Paris Médical* dated August 16th is dedicated to the memory of Jules Marey on the occasion of the centenary of his birth, and contains the address delivered by Professor Richet to which we alluded in the *Journal* of August 16th (p. 271). Marey, who was for thirty-five years professor at the Collège de France, was

not only the first to introduce the graphic method into physiology and the sphygmograph into clinical medicine, but by his study of simple and complicated muscular movements, and of the flight of birds and insects, he was one of the precursors of cinematography and aviation. In addition to publishing the commemorative orations delivered by Professor Richet of the Académie de Médecine, Professor Gley of the Collège de France and M. Raoul Grimoin-Sansom, director of the Marey Institute in the Bois de Boulogne, the issue of the *Paris Médical* contains extracts from Marey's works on the circulation of the blood, human movements, and the flight of birds and insects.

PROFESSOR SIGMUND FREUD of Vienna has been awarded the Goethe prize of 10,000 marks.

THE one hundred and sixtieth volume of the *Archiv für klinische Chirurgie*, the two hundred and twenty-fifth volume of the *Deutsche Zeitschrift für Chirurgie*, and the issue of *Wiener medizinische Wochenschrift* for August 9th have each been dedicated to Professor Anton von Eiselsberg of Vienna on the occasion of his 70th birthday.

THE *Gazette des Hôpitaux* for July 30th contains a facsimile of the greatly abridged issue of August 1st, 1830, when *La Lancette Française*, as the journal was then called, was suspended by royal decree, in common with the rest of the periodical French press.

WE have received the first issue, published last January at Naples, of *Diagnostica e technica di Laboratorio*, a monthly journal edited by Professors L. D'Amato of Naples and L. Zoja of Milan, supported by an international committee. The issue contains original articles dealing with laboratory diagnosis and technique, short laboratory notes, reviews of books, and abstracts from current literature. The annual subscription is 120 lire for Italy, and 150 lire for foreign countries.

MR. LEONARD L. MACKALL, a well-known figure in Osler's world, has been appointed consultant in bibliography to the New York Academy of Medicine.

DR. JOHN WILLIAM HUNT, acting chief medical officer, has been appointed a nominated member of the Legislative Council of the Colony of Fiji.

MESSRS. CASSELL AND CO., LTD., announce for early publication *Sick Children: Diagnosis and Treatment*, by Dr. Donald Paterson; also a fifth edition of Treves's *Students' Handbook of Surgical Operations*, revised by Mr. Cecil Wakeley.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

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MEDICAL SECRETARY, *Mediocera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

WRITER'S CRAMP.

"DEVON" invites suggestions for treatment other than rest for writer's cramp? "Is electrical treatment of any value, and what is the prognosis?"

PYLORIC CANCER: REMISSION OF SYMPTOMS.

"WICKLOW" writes: On March 5th last a patient of mine was discharged from a Dublin hospital with pyloric cancer too advanced, and himself in too bad a bodily state, for operation. He came home to die, and now, six months later, he is doing casual work on a farm. Some three months ago he commenced to take cod-liver oil daily in good doses, and declares he improved from the day he began it. Has any reader had a similar experience? The man was carefully *x*-rayed and examined in every possible way in the Dublin hospital.

PROLONGED ADMINISTRATION OF SALICYLATES.

"M.D." writes: Can any pharmacologist tell me whether prolonged taking of sodium salicylate for chronic rheumatism is likely to be a factor in the deposition of oxalates forming oxalate renal calculi?

WHITE SPOTS ON FINGER NAILS.

"R. L." asks for information about the nature and treatment of the white spots which occur on finger nails. He writes: Sir Norman Walker, I believe, stated that they were due to air in the nail cells. A patient whose nails are very unsightly through these spots plays a lot of golf and tennis.

TREATMENT OF DYSMENORRHOEA.

DR. FRANCISCO PINERO (Barcelona), in reply to Dr. E. R. B. Murray's inquiry (August 16th, p. 372), writes: I would suggest injections of alcohol into the periuterine ganglion of Frankenhaeuser, as described by Dr. Dietrich Blos in the *Münchener medizinische Wochenschrift* of July 12th, 1929 (p. 1173).

KEEPING FIT IN HOT CLIMATES.

SURGEON COMMANDER A. BERNARD CLARK, R.N., writes: Having spent four out of the past eight years on the Mediterranean station, I would like to reply as follows to the inquiry of "C. H. B." Alcohol is not at all essential to health, and I am convinced that one is better without it in hot climates. I am an abstainer myself, and have never had one day's real sickness. It is quite erroneous to say that total abstainers are the first men to go sick; actually, they are probably the last. I agree that protection of the abdomen, especially at night, is very important; there can be no doubt that a large number of cases of enteritis are caused by neglect of this precaution. Anyone who takes large quantities of alcohol must undoubtedly take a large amount of violent exercise to get rid of the poison and so keep fit, but one who abstains can get all the exercise he requires during the very hot weather in frequent bathing and swimming. There is no doubt that exercise of some kind is essential for complete fitness even in the hottest weather.

"C. G. H.," replying to the inquiry of "C. H. B." (July 26th, p. 168), writes: Ten years' practice in the Tropics has convinced me that the problems of exercise and alcohol there are exactly paralleled by those in temperate climates, the individual varying in his requirements in both respects. Thus the "beefy, active, he-man," who has usually a large appetite, requires a considerable amount of exercise. The type which may be broadly called the "vagotonic" also seems to need alcohol as a sedative, without which he will react too readily to the many minor irritations characterizing life in a hot climate, becoming irritable and sleeping badly. The opposite type, however, the spare man of moderate habit and physique (broadly, the sympathicotonic), can, I am sure, do with far less of either, and will be the worse for trying to compete with those otherwise constituted. Too frequently there are to be seen cases of exercise pursued to exhaustion, and followed by the attempt to repair that exhaustion with an extra ration of alcohol. It is often forgotten that mere existence in a hot climate entails more output of energy, both bodily and nervous, than residence in a cool one; this should be taken into account by the individual (or his medical adviser) in working out his needs in the way of exercise and alcohol. The latter is, in my opinion, of great use as a sedative, but should be employed strictly as such—for instance, at the end of a trying day to damp down the worries and irritations of work, and facilitate the transition to the evening's recreation. If a man always has a "sundowner," however, he will need two when the weather is bad or his job is particularly trying, and the step from this to the daily "two plus" is a short and easy one. Alcohol with the day's work ahead is anathema, and the royal road to a heat stroke.

DERMATITIS HERPETIFORMIS.

"M.B." (Northampton) writes: In reply to Dr. Richmond's inquiry (August 23rd, p. 308), I have always thought that arsenic was considered the only remedy for dermatitis herpetiformis. I have had two cases—one nearly fatal in a very old lady—and by pushing arsenic to extreme doses brought about their recovery.

SOUR MILK.

DR. M. R. SONI (Manchester), replying to "E. W. D." (August 9th, p. 236), writes: I recommend as the best and cheapest method of preparing sour milk the following procedure, which is adopted in India. Boil the milk, and when it has cooled down to about 100° F., pour it into a flat basin, adding two tablespoonfuls of "dahi," which can be obtained from most Indian restaurants. Stir well, and allow to stand for seven to ten hours in a moderately warm oven. At the end of this period the milk will have "set." All the sour milk is used except a few tablespoonfuls, which should be added to fresh milk on the following day; the process can be continued indefinitely. A little practice will improve the results to a great extent. If the milk tastes sweet

it has not "set" properly. If it tastes too sour, too much "dahi" was added to the boiled milk, or the milk was allowed to stand unduly long. Excessive heating will stop the fermentation process; too much cold will retard it.

INCOME TAX.

Expenses of Supplementary Practice.

"H. M. G." holds a hospital appointment, and is permitted to do private work. The latter necessitates using his residence and car for professional purposes, and he is unable to agree on the appropriate deductions with the local inspector of taxes.

*** The fact that the car was necessitated by the private work, and might otherwise not have been acquired, does not provide a good ground for claiming to deduct a higher ratio of the car expenses than that indicated by the professional and private mileages. That ratio would apply also to the chauffeur-gardener's wages, after excluding the gardening time as purely personal. With regard to the rent, rates, and other general household expenses, much would depend on which room is set aside for professional purposes, and the extent to which it is put to private uses. Perhaps the analogy of the clergyman's study, for which he is allowed one-eighth of the total cost, points to the proper ratio.

Expenses of Locumtenent and Car.

"REVENUE" inquires what is a proper amount to deduct for board and lodging for a locumtenent, and also what is the basis for dividing motor car costs between professional and private use.

*** Our correspondent has presumably already deducted some part of the general domestic staff expenses and a percentage of rent, rates, etc., as applicable to professional purposes, and it has to be remembered that it is only the balance of these expenses from which an allocation for the board and lodging of the locumtenent can be made. So much depends on circumstances that it is difficult to advise, but 4 guineas per week seems high for a normal provincial practice. The only definite and satisfactory basis of allocating car expenses is the mileage basis, and for that reason it is advisable to keep a record of private mileage.

LETTERS, NOTES, ETC.

SPIROCHAETES IN HODGKIN'S DISEASE.

DR. P. F. MACGINNIS (pathologist to the Chesterfield and North Derbyshire Royal Hospital) writes: We have found a large spirochaete in the cervical glands of two consecutive cases of Hodgkin's disease, and we believe this to be an etiological factor in the disease. Should any readers happen on any freshly excised glands from a case of this disease we should be glad to have a fragment sent in 10 per cent. formalin solution. A detailed account of the facts will be published at a later date.

ANHYDROSIS AND ABSCESS.

DR. R. JOHNSTON MCNAB (Manchester) writes: I have recently seen two cases of axillary adenitis in ladies, both of whom I have examined carefully for any septic abrasion or cut in the skin, but in both cases I have failed to find any. On questioning these patients I have elicited the fact that some weeks before the onset they had used a toilet preparation which claims to check perspiration from the part to which it is applied, and it evidently succeeds. In the first case several glands in the axilla broke down and had to be excised. In the second case only one gland appears to be infected—a hard, nodular mass about the size of a cherry just below the anterior axillary fold. I should be glad to hear if any other readers have had any similar experience.

TREATMENT OF ACUTE LYMPHATIC LEUKAEMIA.

DR. A. H. MUIR (Halifax) writes: Dr. Raymond Pearce has kindly thanked me in reporting his case of acute lymphocytic leukaemia (August 23rd, p. 282). When invited to see the child in my opinion both liver and spleen were enlarged. Taking the idea that the liver and spleen were not functioning, I elaborated the treatment which, as far as I know, is quite original. In pneumonia liver extract is very useful. Spleen solution sometimes gives a powerful reaction, at most pyrogenetic.

THE CONDUCT OF NORMAL LABOUR.

DR. W. G. F. OWEN-MORRIS (Dedham, Essex), in the course of a letter expressing approval of the effort to supply anaesthesia for childbirth in necessitous cases, writes: I consider that in all cases where a doctor is in attendance a general anaesthetic and instruments should be employed because of the risk of torn cervix, of torn perineum, of sepsis, and of damage to the child. It is not the use but the misuse of instruments which causes any of these troubles; such misuse is fundamentally due to bad and inadequate training of the young doctor. Since beginning this practice I have never conducted a confinement without the use of chloroform and instruments, and I can conscientiously say that there has been no permanent damage to mother or child in any of my normal cases. I feel that the immediate oblivion granted to the patient, and the awakening to find the child, all pain having ceased, has been full justification for these methods.

"PRONE" OR "SUPINE."

"MEDICUS RESUPINATUS" writes: In the *Journal* of July 26th (p. 161) there is some discussion anent the correct position of the patient whose varicose veins are about to be injected. One author, we are told, declares that the ideal position of the patient is "prone" upon a couch, while another maintains that the patient should always be recumbent. We are, of course, all of us prone to error, but I do not know that we should, supinely, allow error to be perpetuated. Now what did Macaulay write, a hundred years ago, about the poet who described the "prone soldier" as "staring ghastly at the skies"?

TSETSE RESEARCH IN TANGANYIKA.

HIS MAJESTY'S Eastern African Dependencies Trade and Information Office has received the following unofficial information from Tanganyika Territory for the month of June, 1930:

(1) At Kikore Entomological Station the programme of investigation into the behaviour of tsetse in relation to season, game, and vegetation was continued. The data agreed in general with those of the same period of the previous year, but the numbers of fly were extremely low, possibly owing to the phenomenal rains. (2) At Kikore Ecological Station the intensive study of tsetse in relation to its environment has been continued. Attention is being paid to a fungus which has appeared on the tsetse, and intensive study of puparia has been commenced. (3) The experimental formation of vegetation barriers to tsetse at Itundwe Planting Station received considerable attention. The sowings and plantings of last season are already giving indications as to species likely to be of use. A new nursery was formed, as the existing nursery was found to be insufficient. Experiments in working cattle in a fly area are in progress on this station in conjunction with the veterinary department. (4) The poisoning of vegetation has been at a standstill since May, owing to the absence of the officer in charge of this work on vacation leave. It is intended to resume this work in full force on his return in October. Meanwhile, the past work is being kept under observation.

STANDARD INDEXING.

SIR J. J. THOMSON, O.M., President of the Association of Special Libraries and Information Bureaux, writes: An immense volume of information is continuously being recorded in every intellectual field; to render it universally available a system of indexing applicable to all purposes and in all countries is essential. The international adoption of a standard system of indexing would enable references to information on any subject, whatever their source, to be brought into their correct places in a bibliography. This would tend to the preservation and freer exchange of knowledge. The universal decimal classification of the Institut International de Bibliographie has proved to be a suitable system for international adoption, and is already widely used. A joint committee of the Association of Special Libraries and Information Bureaux (Sir Frederic Nathan and Lieut.-Colonel L. Newcombe, National Central Library) and the British Society for International Bibliography (Dr. S. C. Bradford, Science Library, and Professor A. F. C. Pollard, president, Institut International de Bibliographie) has now been formed to advise and assist in its adoption and use in this country. Anyone interested is invited to communicate with the Association of Special Libraries and Information Bureaux, 26, Bedford Square, London, W.C.1.

TESTIMONIAL TO SIR RONALD ROSS.

WE printed on May 10th (p. 832) a list of donations received during February, March, and April, in response to the appeal on behalf of the Ross Award Fund. Further contributions have been made between May 1st and August 26th as follows: the Government of Cyprus (£200), the Maharajah of Mysore, the Oriental Telephone and Electric Co., Ltd., the Chamber of Mines staff of the Nigerian Council, Miss Lindsay, Miss Mary Barclay, Miss J. Stark Browne, Mr. Edmund da Costa, Mrs. E. L. Charrington, Miss L. Carter, Miss H. S. Cooper, Mrs. Elliott, Dr. J. H. Gibbon, Miss Giles, Miss A. Giles, Professor Umberto Gabbi, Mrs. S. B. Gorst, Mr. Fry, Mr. T. M. F. Janseens, Miss A. A. Parson, Miss M. Reddan, Mrs. Seelies, Mrs. Kate I. Swan, and Mrs. M. F. Thomson, the total amounting to £435 18s. 7d. The sum so far received was £14,111 18s. 6d. on August 26th. Donations to the Fund should be sent to Lloyds Bank, Ltd., 110, High Street, Putney, S.W.15.

MEDICAL SERVICES IN MALAYA.

Correction.

WE hasten to correct a misprint which occurred in the Educational Number of the *British Medical Journal* (September 6th, p. 401). The second paragraph of the section headed "Medical Services in Malaya" opened with a statement that "The climate of Malaya is, for the Tropics, very unhealthy." This, as the context plainly shows, ought to read "... *very healthy*."

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 39, 40, 42, 43, 44, 45, 49, and 50 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46, 47, and 48.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *131*.

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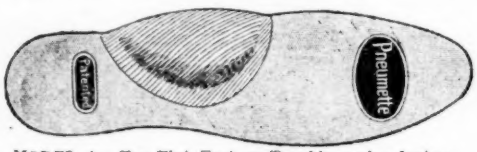

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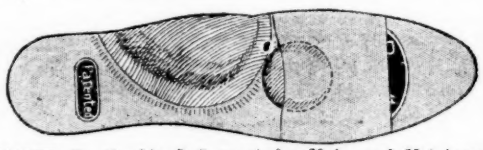

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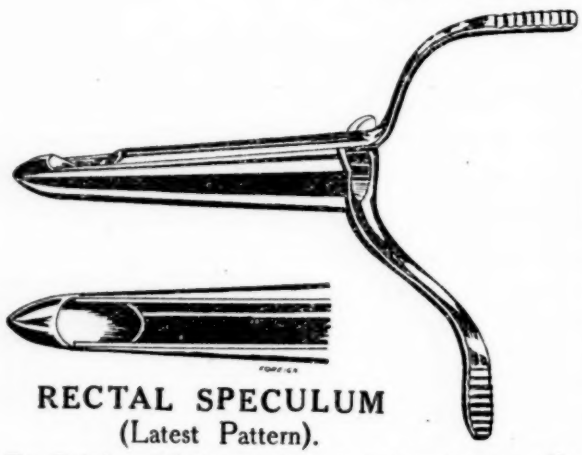

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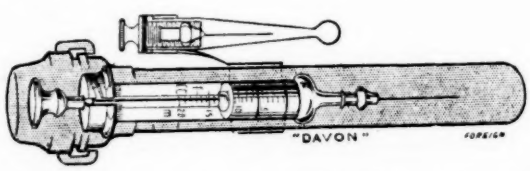

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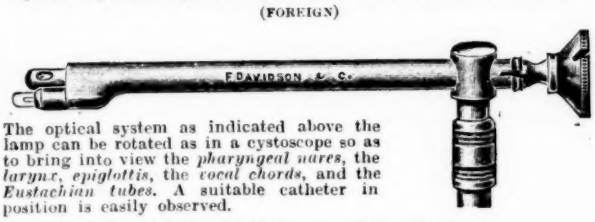

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